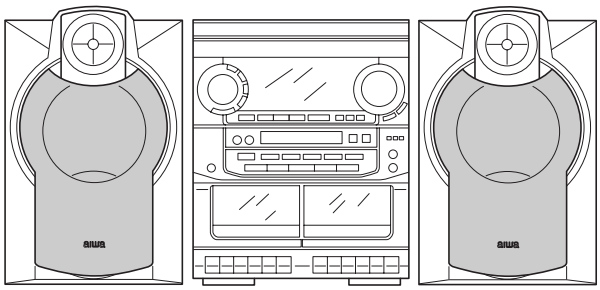
XR-H220MD EZ,K



SERVICE MANUAL

MD / CD STEREO SYSTEM

BASIC TAPE MECHANISM : TN-591SW-143
BASIC CD MECHANISM : 4ZG-1 Z3RNSMDJM
BASIC MD MECHANISM : ZZG-7 DM

SYSTEM	CASSIVER	SPEAKER
XR-H220MD	CX-NH220MD	SX-NH220 YSC SX-NH220 YSC9

If requiring information about the CD mechanism, see Service Manual of 4ZG-1, S/M Code No.09-992-325-4N2.

S/M Code No. 09-997-413-6R1

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SPECIFICATIONS

Main unit CX-NH220MD

FM tuner section

Tuning range	87.5 MHz to 108 MHz
Usable sensitivity (IHF)	16.8 dBf
Antenna terminal	75 ohms (unbalanced)

MW tuner section

Tuning range	531 kHz to 1602 kHz (9 kHz step) 530 kHz to 1710 kHz (10 kHz step)
Usable sensitivity	350 µV/m
Antenna	Loop antenna

LW tuner section

Tuning range	144 kHz to 290 kHz
Usable sensitivity	1400 µV/m
Antenna	Loop antenna

Amplifier section

Power output*	Rated: 20 W + 20 W (6 ohms, T.H.D. 1%, 1 kHz/DIN 45500) Reference: 25 W + 25 W (6 ohms, T.H.D. 10%, 1 kHz/DIN 45324) EZ MODEL: DIN MUSIC POWER: 45 W + 45 W
Total harmonic distortion	0.06 % (8 W, 1 kHz, 6 ohms, DIN AUDIO)

* without connecting to the SURROUND SPEAKERS

Inputs	VIDEO/AUX: 500 mV DIGITAL IN
Outputs	SPEAKERS: accept speakers of 6 ohms SURROUND SPEAKERS: accept speakers of 8 to 16 ohms PHONES (stereo jack): accepts headphones of 32 ohms or more CD DIGITAL OUT (OPTICAL) jack

Compact disc player section

Laser	Semiconductor laser (λ = 780 nm)
D-A converter	1 bit dual
Signal-to-noise ratio	85 dB (1 kHz, 0 dB)
Harmonic distortion	0.05 % (1 kHz, 0 dB)
Wow and flutter	Unmeasurable

MD recorder section

Scanning method	Non-contact optical scanner (Semiconductor laser application)
Recording system	Magnetic polarity modulation overwrite system
Rotation speed	Approx. 400 - 900 rpm (CLV)
Sampling frequency	44.1 kHz
No. of channels	Stereo: 2 channels Monaural: 1 channel
A-D, D-A converter	1-bit
Frequency	20 to 20000 Hz +0.5 - –1.5 dB
Wow and flutter	Unmeasurable

Cassette deck section

Track format	4 tracks, 2 channels stereo
Frequency response	50 Hz to 15000 Hz
Recording system	AC bias
Heads	Deck 1: Recording/playback head × 1, erase head × 1 Deck 2: Playback head × 1

General

Power requirements	230 V AC, 50 Hz
Power consumption	100 W
Standby power consumption	14 W
Dimensions of main unit (W × H × D)	260 × 324 × 344 mm
Weight of main unit	7.2 kg

Speaker system SX-NH220

Cabinet type	2 way, bass reflex (magnetic shielded type)
Speakers	Woofer: 120 mm cone type Tweeter: 20 mm ceramic type
Impedance	6 ohms
Output sound pressure level	87 dB/W/m
Dimensions (W × H × D)	234 × 324 × 270 mm
Weight	2.8 kg

- Design and specifications are subject to change without notice.
- Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
  "DOLBY" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.
- The word "BBE" and the "BBE symbol" are trademarks of BBE Sound,Inc.
  Under license from BBE Sound,Inc.

ACCESSORIES/PACKAGE LIST

DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

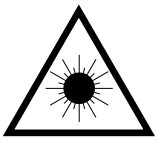
REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	8Z-NB9-906-010		IB,EZ(9L)M<EZS>
1	8Z-NB9-905-010		IB,K(E)M<KS>
2	87-A90-030-010		ANT,LOOP AM-NC C
3	8Z-NB8-704-010		RC UNIT,RC-ZAS16
4	87-043-106-010		WIRE, FM ANT (Z)

PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

This set employs laser. Therefore, be sure to follow carefully the instructions below when servicing.

WARNING!

WHEN SERVICING, DO NOT APPROACH THE LASER EXIT WITH THE EYE TOO CLOSELY. IN CASE IT IS NECESSARY TO CONFIRM LASER BEAM EMISSION. BE SURE TO OBSERVE FROM A DISTANCE OF MORE THAN 30cm FROM THE SURFACE OF THE OBJECTIVE LENS ON THE OPTICAL PICK-UP BLOCK.



- Caution: Invisible laser radiation when open and interlocks defeated avoid exposure to beam.
- Advarsel: Usynling laserståling ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

VAROITUS!

Laiteen Käyttäminen muulla kuin tässä käyttöohjeessa mainitulla tavalla saattaa altistaa käyt-täjän turvallisuusluokan 1 ylittävälle näkymättömälle lasersäteilylle.

VARNING!

Om apparaten används på annat sätt än vad som specificeras i denna bruksanvising, kan användaren utsättas för osynling laserstrålning, som överskrider gränsen för laserklass 1.

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

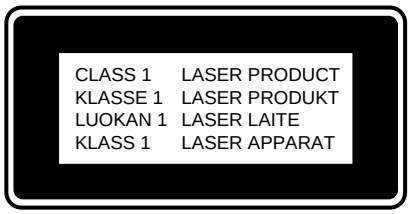
ATTENTION

L'utilisation de commandes, réglages ou procédures autres que ceux spécifiés peut entraîner une dangereuse exposition aux radiations.

ADVARSEL!

Usynlig laserståling ved åbning, når sikkerhedsafbrydereer ude af funktion. Undgå udsættelse for stråling.

This Compact Disc player is classified as a CLASS 1 LASER product.
The CLASS 1 LASER PRODUCT label is located on the rear exterior.

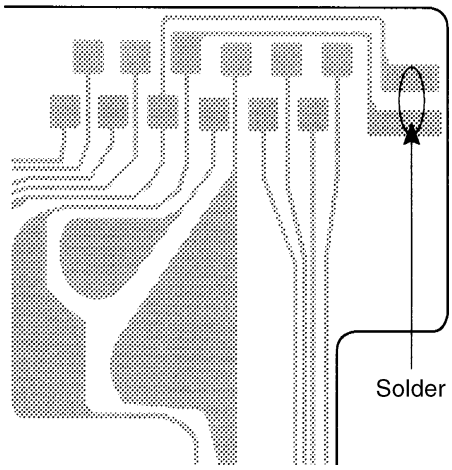


Precaution to replace Optical block (KSS-213B)

Body or clothes electrostatic potential could ruin laser diode in the optical block. Be sure ground body and workbench, and use care the clothes do not touch the diode.

1) After the connection, remove solder shown in the right figure.

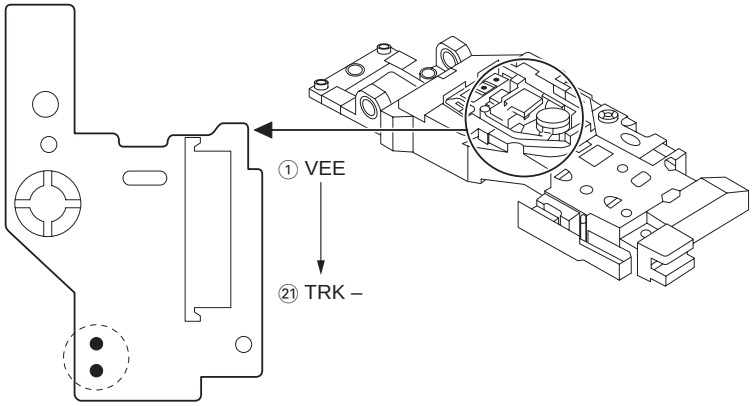
PICK-UP Assy P.C.B



Precaution to replace Optical block (KMS-260A)

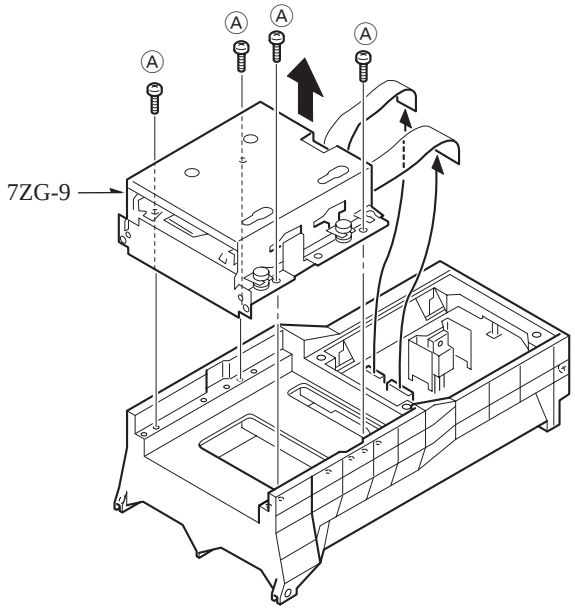
Body or clothes electrostatic potential could ruin laser diode in the optical block. Be sure ground body and workbench, and use care the clothes do not touch the diode.

1) After the connection, remove solder shown in the right figure.

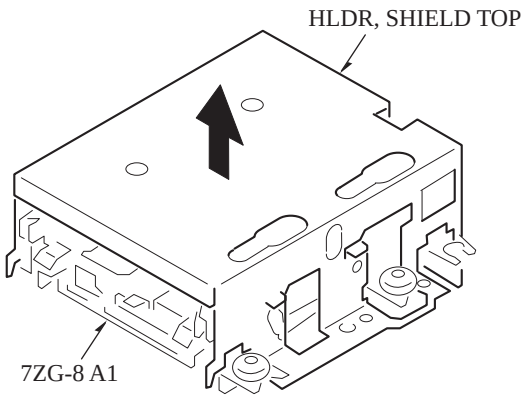


DISASSEMBLY INSTRUCTIONS

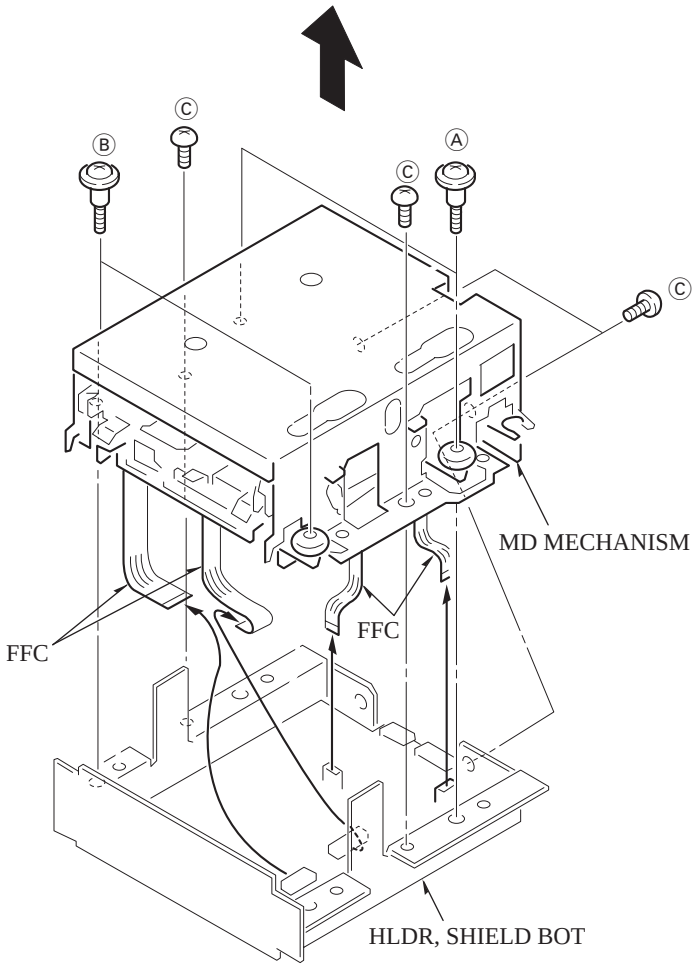
1. Remove the four screws Ⓐ (BVT 2+3-10 W/O SLOT). Remove the 7ZG-9 in the direction of the arrow.



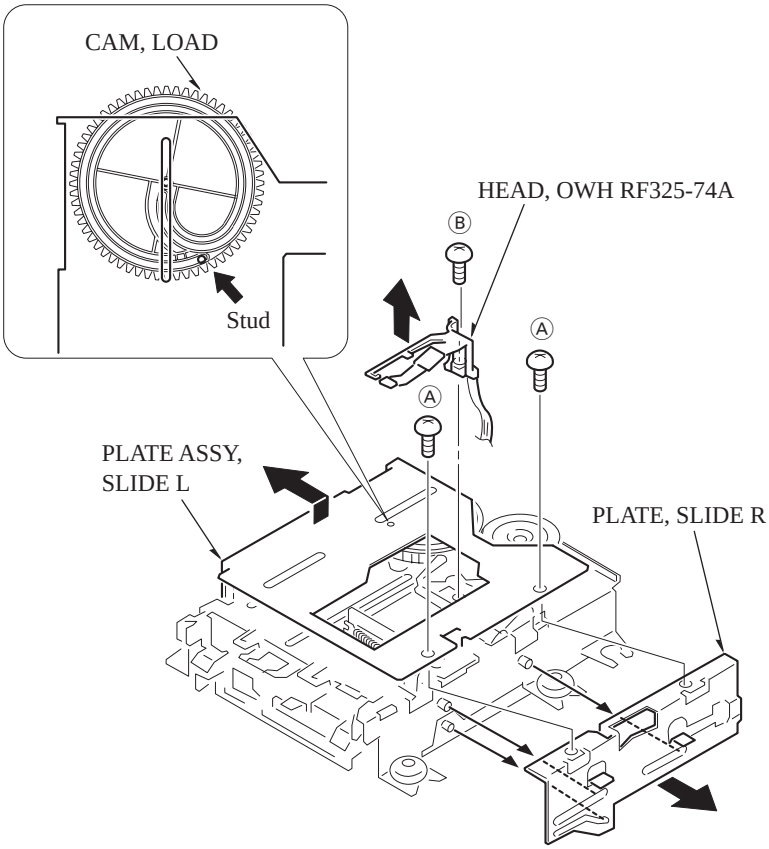
3. Remove the HLDR, SHLD TOP in the direction of the arrow.



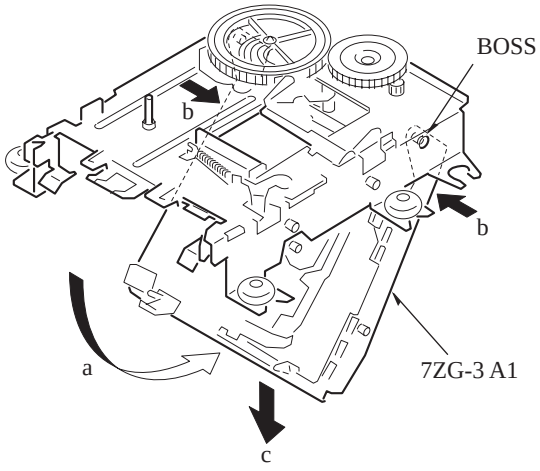
2. Remove the two screws Ⓐ (S-SCREW, MDT), two screws Ⓑ (S-SCREW, MD) and four screws Ⓒ (VTT+3-4). Remove the four FFCs from the connector, and remove the MD MECHANISM in the direction of the arrow.



4. Remove the two screws Ⓐ (VTT+2-4), and remove the PLATE ASSY, SIDE L and PLATE SIDE R in the direction of the arrow. Remove the screw Ⓑ (VW+1.7-5 W/O MFZN2C), and remove the HEAD and OWH RF325-74A in the direction of the arrow.



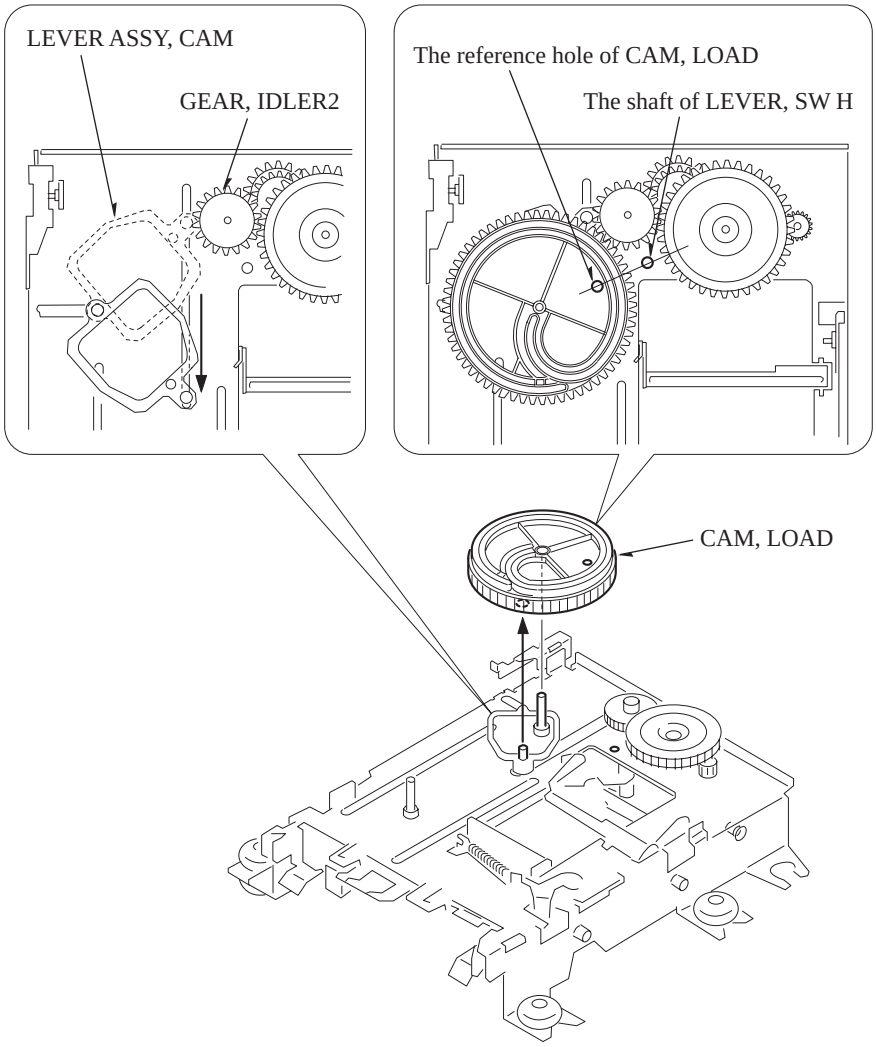
5. Open the 7ZG-3 A1 in the direction of the arrow (a), remove the BOSS by pressing it gently in the direction of the arrow (b), and remove the 7ZG-3 A1 in the direction of the arrow (c).



6. Remove the CAM, LOAD in the direction of arrow.

Note During Assembling:

Rotate the gear fully in the direction of the arrow.
Set up the mechanism so that the reference holes of CAM and LOAD are positioned closest to the shaft of LEVER, SW H.
Let the CAM and LOAD engage with the teeth of GEAR, IDLER2.



ELECTRICAL MAIN PARTS LIST

DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
IC			
	87-017-888-080		IC,NJM4558MD
	87-A20-870-010		IC,GP1F37R
	87-A20-971-040		C-IC,SN74LV14APW
	87-A20-707-010		C-IC,CXA2523AR
	87-A20-708-010		C-IC,CXD2652AR
	87-A20-709-040		C-IC,BD7910FV
	87-ZG9-607-010		C-IC,CXP81952M-523R
	87-ZG9-606-040		C-IC,MN41V4400SJ-08
	87-A20-755-080		C-IC,AK93C45AF
	87-A20-710-040		C-IC,S-8110AMP
	87-A20-711-040		C-IC,BA5970FP
	87-A20-712-040		C-IC,BA6417F
	87-A21-110-040		C-IC,AK4519VF
	87-017-853-040		IC,NJM2100V
	87-A20-797-040		C-IC,NJU7221U30
	87-A20-798-040		C-IC,NJU7221U35
	87-A20-714-040		C-IC,NJM2370U33
	87-017-889-010		IC,NJM4558LD
	87-A20-715-010		IC,M62439SP
	87-070-127-110		IC,LC72131 D
	87-A20-913-010		IC,LA1837NL
	87-A21-103-040		C-IC,MM1454XFBE
	87-A20-502-010		IC,BU1920
	87-A20-914-010		IC,SPS-442-1-F
	8Z-NB9-601-010		C-IC,LC876564V
TRANSISTOR			
	89-213-750-010		TR,2SB1375 (25W)
	87-A30-076-080		C-TR,2SC3052F
	87-A30-071-080		C-TR,RT1N 144C
	87-A30-075-080		C-TR,2SA1235F
	87-026-225-080		FET,2SJ106GR
	87-A30-072-080		C-TR,RT1P 144C
	87-A30-074-080		C-TR,RT1P 141C
	87-A30-087-080		C-FET,2SK2158
	87-026-423-080		C-TR RN2305
	89-115-884-080		CHIP -TRANSISTER 2SA1588Y
	89-341-164-080		CHIP-TRANSISTOR,2SC4116 Y
	87-026-412-080		C-TR RN1305
	89-213-702-010		TR,2SB1370 (1.8W)
	87-026-610-080		TR,KTC3198GR
	87-A30-196-080		TR,2SC4115SRS
	87-026-609-080		TR,KTA1266GR
	87-026-269-080		TR,DTA114ES
	87-026-219-080		TR,DTA144ES (0.3W)
	87-A30-152-080		TR,2SC5395F
	87-A30-256-010		TR,2SD1933
	87-A30-255-010		TR,2SB1342
	87-A30-047-080		TR,CSD655E
	87-A30-091-080		FET,2SJ460
	87-A30-090-080		FET,2SK2541
	87-026-218-080		TR,DTC144ES (0.2W)
	87-026-214-080		TR,DTA114YS (0.3W)
	89-305-352-380		TR,2SC535(B/C)
	87-A30-164-080		TR,CSC2001K
	87-A30-092-080		FET,2SK439E/F
	87-026-210-080		CHIP-TR,DTC144EK
	87-A30-198-080		TR,KTC3199GR
DIODE			
	87-A40-304-080		ZENER,DZ6.2M
	87-A40-313-080		C-DIODE,MC 2840
	87-A40-469-080		C-DIODE,HSM2838CTR
	87-A40-468-080		C-DIODE,HSM2836CTR
	87-A40-299-080		ZENER,DZ5.1M
	87-001-166-080		DIODE,1SS301
	87-A40-412-040		C-DIODE,SB05-05CP
	87-A40-336-080		ZENER,MTZJ27D T-72
	87-020-465-080		DIODE,1SS133 (110MA)
	87-A40-345-080		ZENER,MTZJ10C
	87-070-274-080		DIODE,1N4003 SEM
	87-A40-454-090		DIODE,1N5393
	87-A40-466-080		ZENER,MTZJ2.7A
	87-017-931-080		ZENER,MTZJ5.6B
	87-A40-509-080		ZENER,MTZJ6.8C
	87-A40-270-080		C-DIODE,MC2838
	87-A40-269-080		C-DIODE,MC2836
MAIN C.B			
C101	87-016-495-000		CAP,E 3300-25 M SMG
C104	87-A10-011-090		CAP,E 2200-25 SMG
C105	87-018-127-080		CAP, CER 470P-50V
C106	87-010-260-080		CAP, ELECT 47-25V
C107	87-010-384-080		CAP, ELECT 100-25V
C108	87-010-381-080		CAP, ELECT 330-16V
C111	87-010-247-080		CAP, ELECT 100-50V
C112	87-010-263-080		CAP, ELECT 100-10V
C113	87-010-403-080		CAP, ELECT 3.3-50V
C114	87-010-374-080		CAP, ELECT 47-10V
C115	87-A11-007-080		CAP,M 0.047-50 J DE
C116	87-A11-007-080		CAP,M 0.047-50 J DE
C122	87-010-260-080		CAP, ELECT 47-25V
C123	87-010-260-080		CAP, ELECT 47-25V
C124	87-A11-132-080		CAP,TC U 0.01-50 K B
C130	87-018-211-080		CAP, CER 0.01-50
C152	87-010-409-080		CAP,E 220-50 SME
C207	87-010-545-080		CAP, ELECT 0.22-50V
C208	87-010-545-080		CAP, ELECT 0.22-50V
C209	87-018-133-080		CAPACITOR,CER 4700P-16V
C210	87-018-133-080		CAPACITOR,CER 4700P-16V
C211	87-010-403-080		CAP, ELECT 3.3-50V
C212	87-010-403-080		CAP, ELECT 3.3-50V
C213	87-010-260-080		CAP, ELECT 47-25V
C214	87-010-260-080		CAP, ELECT 47-25V
C217	87-A11-008-080		CAP,M 0.056-50 J DE
C218	87-A11-008-080		CAP,M 0.056-50 J DE
C219	87-010-544-080		CAP, ELECT 0.1-50V
C220	87-010-544-080		CAP, ELECT 0.1-50V
C221	87-018-221-080		CAP,CER 0.01-50
C222	87-018-221-080		CAP,CER 0.01-50
C223	87-018-134-080		CAPACITOR,TC-U 0.01-16
C224	87-018-134-080		CAPACITOR,TC-U 0.01-16
C229	87-018-123-080		CAP, CER 220P-50V
C230	87-018-123-080		CAP, CER 220P-50V
C235	87-018-209-080		CAP, CER 0.1-50V
C236	87-018-209-080		CAP, CER 0.1-50V
C237	87-018-134-080		CAPACITOR,TC-U 0.01-16
C253	87-018-131-080		CAP, CER 1000P-50V
C254	87-018-131-080		CAP, CER 1000P-50V
C255	87-018-115-080		CAP, CER 47P-50V
C256	87-018-115-080		CAP, CER 47P-50V
C257	87-018-119-080		CAP, CER 100P-50V
C258	87-018-119-080		CAP, CER 100P-50V
C301	87-018-195-080		CAP, CER 1200P-16V
C302	87-018-195-080		CAP, CER 1200P-16V
C303	87-018-195-080		CAP, CER 1200P-16V
C304	87-018-195-080		CAP, CER 1200P-16V
C307	87-010-263-080		CAP, ELECT 100-10V
C308	87-010-263-080		CAP, ELECT 100-10V
C309	87-018-115-080		CAP, CER 47P-50V
C310	87-018-115-080		CAP, CER 47P-50V
C311	87-A10-773-080		CAP,M 0.10-50 J
C312	87-A10-773-080		CAP,M 0.10-50 J
C315	87-010-374-080		CAP, ELECT 47-10V

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
C317	87-010-546-080		CAP, ELECT 0.33-50V
C318	87-010-546-080		CAP, ELECT 0.33-50V
C322	87-018-209-080		CAP, CER 0.1-50V
C323	87-018-209-080		CAP, CER 0.1-50V
C325	87-018-209-080		CAP, CER 0.1-50V
C326	87-018-209-080		CAP, CER 0.1-50V
C327	87-018-209-080		CAP, CER 0.1-50V
C360	87-010-401-080		CAP, ELECT 1-50V
C361	87-010-374-080		CAP, ELECT 47-10V
C399	87-018-127-080		CAP, CER 470P-50V
C401	87-010-400-080		CAP, ELECT 0.47-50V
C402	87-010-400-080		CAP, ELECT 0.47-50V
C403	87-018-118-080		CAP,TC-U 82P-50 B
C404	87-018-118-080		CAP,TC-U 82P-50 B
C409	88-266-660-810		CAP,SC 2200P-25 X K
C410	88-266-660-810		CAP,SC 2200P-25 X K
C411	87-010-405-080		CAP, ELECT 10-50V
C412	87-010-405-080		CAP, ELECT 10-50V
C452	87-010-382-080		CAP, ELECT 22-25V
C458	87-018-131-080		CAP, CER 1000P-50V
C459	87-018-128-080		CAP, CERA-SOL SS 560P
C461	87-018-126-080		CAP,TC-U 390P-50 B
C462	87-018-126-080		CAP,TC-U 390P-50 B
C601	87-018-195-080		CAP, CER 1200P-16V
C602	87-018-195-080		CAP, CER 1200P-16V
C611	87-010-545-080		CAP, ELECT 0.22-50V
C612	87-010-545-080		CAP, ELECT 0.22-50V
C613	87-010-545-080		CAP, ELECT 0.22-50V
C614	87-010-545-080		CAP, ELECT 0.22-50V
C615	87-018-104-080		CAP,TC-U 10P-50 SL
C616	87-010-260-080		CAP, ELECT 47-25V
C617	87-010-260-080		CAP, ELECT 47-25V
C701	87-010-404-080		CAP, ELECT 4.7-50V
C702	87-018-134-080		CAPACITOR,TC-U 0.01-16
C703	87-018-134-080		CAPACITOR,TC-U 0.01-16
C704	87-018-131-080		CAP, CER 1000P-50V
C705	87-018-131-080		CAP, CER 1000P-50V
C706	87-018-131-080		CAP, CER 1000P-50V
C707	87-010-112-080		CAP, ELECT 100-16V
C708	87-A11-144-080		CAP,TC U 0.1-50 K B
C709	87-010-248-080		CAP, ELECT 220-10V
C710	87-010-112-080		CAP, ELECT 100-16V
C712	87-018-149-080		CAP,TC-U 15P-50 CH
C713	87-018-149-080		CAP,TC-U 15P-50 CH
C714	87-010-112-080		CAP, ELECT 100-16V
C715	87-018-119-080		CAP, CER 100P-50V
C746	87-018-134-080		CAPACITOR,TC-U 0.01-16
C751	87-018-134-080		CAPACITOR,TC-U 0.01-16
C752	87-018-143-080		CAP,TC-U 4.7P-50 CH
C753	87-010-408-080		CAP, ELECT 47-50V
C755	87-A11-144-080		CAP,TC U 0.1-50 K B
C756	87-018-134-080		CAPACITOR,TC-U 0.01-16
C757	87-018-134-080		CAPACITOR,TC-U 0.01-16
C758	87-010-112-080		CAP, ELECT 100-16V
C759	87-018-134-080		CAPACITOR,TC-U 0.01-16
C761	87-010-404-080		CAP, ELECT 4.7-50V
C762	87-010-400-080		CAP, ELECT 0.47-50V
C763	87-010-401-080		CAP, ELECT 1-50V
C764	87-010-401-080		CAP, ELECT 1-50V
C765	87-018-115-080		CAP, CER 47P-50V
C766	87-010-407-080		CAP, ELECT 33-50V
C768	87-018-208-080		CAP 0.047-50F
C769	87-010-403-080		CAP, ELECT 3.3-50V
C770	87-018-134-080		CAPACITOR,TC-U 0.01-16
C771	87-010-406-080		CAP, ELECT 22-50
C773	87-018-195-080		CAP, CER 1200P-50V
C774	87-010-405-080		CAP, ELECT 10-50V
C775	88-266-850-810		CAP,SC 0.047-25 X K
C776	87-018-134-080		CAPACITOR,TC-U 0.01-16
C783	87-018-202-080		CAP, CERAM. 6800PF
C784	87-018-202-080		CAP, CERAM. 6800PF
C785	87-010-405-080		CAP, ELECT 10-50V
C786	87-010-405-080		CAP, ELECT 10-50V
C787	87-018-196-080		CAP, CER 1500P-16V
C788	87-018-196-080		CAP, CER 1500P-16V
C789	87-010-546-080		CAP, ELECT 0.33-50V
C790	87-010-546-080		CAP, ELECT 0.33-50V
C801	87-018-134-080		CAPACITOR,TC-U 0.01-16
C802	87-018-134-080		CAPACITOR,TC-U 0.01-16
C803	87-018-134-080		CAPACITOR,TC-U 0.01-16
C804	87-018-134-080		CAPACITOR,TC-U 0.01-16
C805	87-010-401-040		CAP,E 1-50 SME
C807	87-A11-144-080		CAP,TC U 0.1-50 K B
C808	87-018-134-080		CAPACITOR,TC-U 0.01-16
C809	87-018-134-080		CAPACITOR,TC-U 0.01-16
C810	87-018-134-080		CAPACITOR,TC-U 0.01-16
C811	87-018-134-080		CAPACITOR,TC-U 0.01-16
C812	87-010-408-080		CAP, ELECT 47-50V
C813	87-018-131-080		CAP, CER 1000P-50V
C851	87-018-123-080		CAP, CER 220P-50V
C852	87-018-123-080		CAP, CER 220P-50V
C853	87-018-127-080		CAP, CER 470P-50V
C854	87-A11-144-080		CAP,TC U 0.1-50 K B
C855	87-010-405-080		CAP, ELECT 10-50V
C856	87-010-405-080		CAP, ELECT 10-50V
C857	87-018-134-080		CAPACITOR,TC-U 0.01-16
C858	87-018-109-080		CAP, CER 22P-50V
C859	87-018-109-080		CAP, CER 22P-50V
C860	87-018-134-080		CAPACITOR,TC-U 0.01-16
C901	87-018-209-080		CAP, CER 0.1-50V
C921	87-018-134-080		CAPACITOR,TC-U 0.01-16
C922	87-018-099-080		CAP CERA 3.9P-50
C923	87-018-144-080		CAP,TC U 506P-50 CH
C924	87-014-049-080		CAP,PP 470P-100 J
C937	87-018-134-080		CAPACITOR,TC-U 0.01-16
C938	87-018-134-080		CAPACITOR,TC-U 0.01-16
C943	87-A11-144-080		CAP,TC U 0.1-50 K B
C944	87-018-104-080		CAP,TC-U 10P-50 SL
CF801	87-008-423-010		CERAMIC FILTER,SFE10.7
CF802	82-785-747-010		CF MS2 GHY R
CN301	87-A60-620-010		CONN,3P V 2MM JMT
CN351	87-A60-625-010		CONN,8P V 2MM JMT
CN601	87-099-719-010		CONN,30P TYK-B(X)
CN603	87-099-014-010		CONN,12P 6216 V
CN605	84-ZG1-647-010		CONN ASSY,2P
CNA101	87-NB8-626-010		CONN ASSY, 4P FAN
FB301	87-008-372-080		FILTER, EMI BL OIRNI
FB303	87-008-474-080		F-BEAD, EMI BL02RN1
FB601	87-008-372-080		FILTER, EMI BL OIRNI
FFE801	A8-6ZA-192-030		6ZA-1 FEJNM
J201	87-A60-602-010		JACK,DIA6.3 BLK ST W/SW TC
J202	87-A60-238-010		TERMINAL,SP 4P (MSC)
J206	87-A60-641-010		JACK,PIN 4P R/W/B JALCO
J601	87-A60-881-010		JACK,PIN 2P MSP 242V05 PBSN
J802	87-A60-403-010		TERMINAL,ANT PAL 2P HSP-312V05
JW307	87-008-372-080		FILTER, EMI BL OIRNI
L201	87-003-383-010		COIL,1UH-S
L202	87-003-383-010		COIL,1UH-S
L451	87-007-342-010		COIL,OSC 85K BIAS
L701	87-005-847-080		COIL,2.2UH(CECS)
L771	87-A50-266-010		COIL,FM DET-2N(TOK)
L772	87-A91-110-010		FLTR,PCFJZH-450 (TOK)
L801	87-005-847-080		COIL,2.2UH(CECS)
L851	87-005-847-080		COIL,2.2UH(CECS)
L941	87-A50-020-080		COIL,ANT LW(COI)
L942	87-A50-019-080		COIL,OSC LW(COI)
L981	8Z-NFA-665-010		COIL,AMPACK 2L(TOK)
R249	87-A00-258-080		RES,M/F 0.22-1W J
R250	87-A00-258-080		RES,M/F 0.22-1W J
RY101	87-A90-464-010		RELAY, DG12D2-0(M)

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
TC942	87-011-221-080		CAP, TRIMMER 30P
W101	83-NE2-618-110		F-CABEL,5P-2.5
WH102	87-A90-459-010		HLDR,WIRE 2.5-5P
X701	87-A70-061-010		VIB,XTAL 4.500MHZ CSA-309
FRONT C.B			
C9	87-010-322-080		C-CAP,S 100P-50 CH
C10	87-012-156-080		C-CAP,S 220P-50 CH
C11	87-012-140-080		C-CAP,S 470P-50 CH
C14	87-012-140-080		C-CAP,S 470P-50 CH
C101	87-010-194-080		CAP, CHIP 0.047
C124	87-010-196-080		CHIP CAPACITOR,0.1-25
C251	87-010-075-040		CAP,E 10-16 5L
C252	87-012-157-080		C-CAP,S 330P-50 CH
C253	87-010-196-080		CHIP CAPACITOR,0.1-25
C701	87-010-384-040		CAP,E 100-25 SME
C801	87-010-112-040		CAP,E 100-16
C802	87-010-260-040		CAP,E 47-25 SME
C803	87-010-197-080		CAP, CHIP 0.01 DM
C804	87-010-197-080		CAP, CHIP 0.01 DM
C805	87-A11-144-080		CAP,TC U 0.1-50 K B
C806	87-010-401-040		CAP,E 1-50 SME
C807	87-010-402-040		CAP,E 2.2-50 SME
C808	87-010-402-040		CAP,E 2.2-50 SME
C809	87-010-405-040		CAP,E 10-50
C810	87-010-805-080		C-CAP,S 1-16 Z F
C851	87-010-322-080		C-CAP,S 100P-50 CH
C852	87-010-322-080		C-CAP,S 100P-50 CH
C853	87-010-322-080		C-CAP,S 100P-50 CH
C901	87-010-555-040		CAP,E 100-10 GAS
C902	87-010-196-080		CHIP CAPACITOR,0.1-25
C903	87-010-494-040		CAP,E 1-50 GAS
C904	87-010-196-080		CHIP CAPACITOR,0.1-25
C905	87-012-155-080		C-CAP 180P-50CH
C906	87-010-312-080		C-CAP,S 15P-50 CH
C907	87-010-322-080		C-CAP,S 100P-50 CH
C908	87-012-156-080		C-CAP,S 220P-50 CH
C909	87-012-156-080		C-CAP,S 220P-50 CH
C910	87-010-197-080		CAP, CHIP 0.01 DM
C911	87-A10-189-040		CAP,E 220-10
C912	87-010-194-080		CAP, CHIP 0.047
C914	87-010-196-080		CHIP CAPACITOR,0.1-25
C915	87-010-404-040		CAP,E 4.7-50 SME
C916	87-010-404-040		CAP,E 4.7-50 SME
C917	87-010-196-080		CHIP CAPACITOR,0.1-25
C918	87-010-190-080		S CHIP F 0.01
C919	87-010-190-080		S CHIP F 0.01
C920	87-010-197-080		CAP, CHIP 0.01 DM
C921	87-010-408-040		CAP,E 47-50 SME
C922	87-010-194-080		CAP, CHIP 0.047
C923	87-010-197-080		CAP, CHIP 0.01 DM
C924	87-010-075-040		CAP,E 10-16 5L
C925	87-010-196-080		CHIP CAPACITOR,0.1-25
C926	87-010-194-080		CAP, CHIP 0.047
C927	87-010-194-080		CAP, CHIP 0.047
CN101	87-099-720-010		CONN,30P TYK-B(P)
CN151	87-099-015-010		CONN,13P 6216V
CN701	87-A60-674-010		CONN,10P H 2MM JMT
CN801	87-099-195-010		CONN,7P 6216 V
FL901	8Z-NB9-602-010		FL,11-BT-172GNK
L331	87-A50-333-010		COIL,OSC 9.43MHZ
LED606	87-A40-619-080		LED,SLR-56PT-TE7-W GRN
S201	87-A90-535-010		SW,RTRY EC16B24304
S202	87-A90-950-010		SW,RTRY EC12E12504 ENCORDER
S301	87-A91-024-080		SW,TACT KSH0611BT
S302	87-A91-024-080		SW,TACT KSH0611BT
S303	87-A91-024-080		SW,TACT KSH0611BT
S304	87-A91-024-080		SW,TACT KSH0611BT
S305	87-A91-024-080		SW,TACT KSH0611BT
S306	87-A91-024-080		SW,TACT KSH0611BT
S307	87-A91-024-080		SW,TACT KSH0611BT
S308	87-A91-024-080		SW,TACT KSH0611BT
S309	87-A91-024-080		SW,TACT KSH0611BT
S310	87-A91-024-080		SW,TACT KSH0611BT
S311	87-A91-024-080		SW,TACT KSH0611BT
S312	87-A91-024-080		SW,TACT KSH0611BT
S313	87-A91-024-080		SW,TACT KSH0611BT
S314	87-A91-024-080		SW,TACT KSH0611BT
S315	87-A91-024-080		SW,TACT KSH0611BT
S316	87-A91-024-080		SW,TACT KSH0611BT
S317	87-A91-024-080		SW,TACT KSH0611BT
S318	87-A91-024-080		SW,TACT KSH0611BT
S319	87-A91-024-080		SW,TACT KSH0611BT
S320	87-A91-024-080		SW,TACT KSH0611BT
S321	87-A91-024-080		SW,TACT KSH0611BT
S323	87-A91-024-080		SW,TACT KSH0611BT
S324	87-A91-024-080		SW,TACT KSH0611BT
S325	87-A91-024-080		SW,TACT KSH0611BT
S326	87-A91-024-080		SW,TACT KSH0611BT
S327	87-A91-024-080		SW,TACT KSH0611BT
S328	87-A91-024-080		SW,TACT KSH0611BT
S329	87-A91-024-080		SW,TACT KSH0611BT
S330	87-A91-024-080		SW,TACT KSH0611BT
S331	87-A91-024-080		SW,TACT KSH0611BT
S332	87-A91-024-080		SW,TACT KSH0611BT
S333	87-A91-024-080		SW,TACT KSH0611BT
SFR701	87-A90-556-080		SFR,2.2K H HOKU
AC1 C.B			
⚠	87-033-213-080		CLAMP, FUSE
⚠F101	87-035-190-010		FUSE, 2AT
⚠T1	87-A60-317-010		TERMINAL, 1P MSC
⚠T2	87-A60-317-010		TERMINAL, 1P MSC
AC2 C.B			
⚠PR101	87-A90-195-080		PROTECTOR,7A 491SERIES 60V
⚠PR102	87-A90-195-080		PROTECTOR,7A 491SERIES 60V
⚠PT101	8Z-NB9-605-010		PT,D ZNB-9
WH101	87-A90-459-010		HLDR,WIRE 2.5-5P
INTERFACE C.B			
C101	87-010-196-080		CHIP CAPACITOR,0.1-25
C102	87-010-101-080		CAP, ELECT 220-16
C104	87-010-370-040		CAP,E 330-6.3 SME
C105	87-010-380-080		CAP, ELECT 47-16V
C106	87-010-101-080		CAP, ELECT 220-16
C201	87-010-402-080		CAP, ELECT 2.2-50V
C202	87-010-402-080		CAP, ELECT 2.2-50V
C203	87-012-156-080		C-CAP,S 220P-50 CH
C204	87-012-156-080		C-CAP,S 220P-50 CH
C205	87-010-180-080		C-CER 1500P
C206	87-010-180-080		C-CER 1500P
C207	87-010-404-080		CAP, ELECT 4.7-50V
C208	87-010-404-080		CAP, ELECT 4.7-50V
C251	87-010-408-080		CAP, ELECT 47-50V
C252	87-010-196-080		CHIP CAPACITOR,0.1-25
C401	87-010-178-080		CHIP CAP 1000P
C402	87-010-178-080		CHIP CAP 1000P
C403	87-010-196-080		CHIP CAPACITOR,0.1-25
C404	87-010-196-080		CHIP CAPACITOR,0.1-25
C411	87-012-140-080		CAP 470P
C421	87-010-196-080		CHIP CAPACITOR,0.1-25
CON901	87-A60-056-010		CONN,12P V 9604S-12C
CON902	87-A60-060-010		CONN,07P V 9604S-07C
CON903	87-009-030-010		CONNECTOR 2P PH M
CON904	87-A60-061-010		CONN,06P V 9604S-06C

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
CON905	87-A60-423-010		CONN,14P V TOC-B
CON906	87-A60-422-010		CONN,8P V TOC-B
R405	87-A50-189-080		C-COIL,S BLM21B272S
FAN C.B			
C131	87-010-263-080		CAP,ELECT 100-10V
C132	87-010-380-080		CAP,ELECT 47-16V
C133	87-010-401-080		CAP,ELECT 1-50V
CN101	87-009-030-010		CONNECTOR, 2P PH M
CN102	87-009-032-010		CONNECTOR, 4P YEL
MD C.B			
C100	87-016-296-080		C-CAP,TN 22-4SV(A)
C101	87-016-296-080		C-CAP,TN 22-4SV(A)
C102	87-012-286-080		CAP, U 0.01-25
C103	87-010-787-080		CAP, U 0.022-25
C104	87-010-662-080		C-CAP,E 22-6.3
C105	87-010-831-080		C-CAP,U,0.1-16F
C106	87-016-462-080		C-CAP,S 1-16 F
C107	87-012-195-080		C-CAP,U 100P-50CH
C108	87-012-274-080		CHIP CAP,U 1000P-50B
C109	87-016-436-080		C-CAP,TN 47-4(B2)
C111	87-016-296-080		C-CAP,TN 22-4SV(A)
C112	87-012-286-080		CAP, U 0.01-25
C113	87-012-284-080		CAP, U 6800P-50
C114	87-010-828-080		CHIP CAPACITOR,U 0.033-25F
C115	87-A10-369-080		C-CAP,S 0.47-16 K B
C116	87-012-282-080		CAP, U 4700P-50
C117	87-016-462-080		C-CAP,S 1-16 F
C118	87-012-282-080		CAP, U 4700P-50
C119	87-016-491-080		C-CAP,S 0.22-16 FZ
C120	87-010-787-080		CAP, U 0.022-25
C121	87-012-286-080		CAP, U 0.01-25
C122	87-010-829-080		CAP, U 0.047-16
C123	87-012-286-080		CAP, U 0.01-25
C124	87-010-662-080		C-CAP,E 22-6.3
C125	87-010-662-080		C-CAP,E 22-6.3
C126	87-010-831-080		C-CAP,U,0.1-16F
C201	87-010-831-080		C-CAP,U,0.1-16F
C202	87-010-831-080		C-CAP,U,0.1-16F
C203	87-010-785-080		C-CAP,U0.015-25BK
C204	87-016-461-080		C-CAP,S 0.47-16F
C205	87-010-831-080		C-CAP,U,0.1-16F
C206	87-012-270-080		CAP, U 470P-50
C207	87-016-461-080		C-CAP,S 0.47-16F
C208	87-012-286-080		CAP, U 0.01-25
C209	87-010-831-080		C-CAP,U,0.1-16F
C210	87-012-172-080		CAPACITOR CHIP U 10P CH
C211	87-012-172-080		CAPACITOR CHIP U 10P CH
C212	87-012-195-080		C-CAP,U 100P-50CH
C213	87-010-662-080		C-CAP,E 22-6.3
C214	87-012-274-080		CHIP CAP,U 1000P-50B
C217	87-012-188-080		C-CAP,U 47P-50 CH
C218	87-012-172-080		CAPACITOR CHIP U 10P CH
C219	87-016-296-080		C-CAP,TN 22-4SV(A)
C220	87-010-662-080		C-CAP,E 22-6.3
C221	87-010-831-080		C-CAP,U,0.1-16F
C222	87-016-444-080		C-CAP,TN 47-10 F95E
C223	87-010-831-080		C-CAP,U,0.1-16F
C224	87-A10-685-080		C-CAP,S 470P-100 J CH
C225	87-010-831-080		C-CAP,U,0.1-16F
C226	87-010-831-080		C-CAP,U,0.1-16F
C227	87-012-274-080		CHIP CAP,U 1000P-50B
C228	87-012-274-080		CHIP CAP,U 1000P-50B
C229	87-012-274-080		CHIP CAP,U 1000P-50B
C232	87-012-274-080		CHIP CAP,U 1000P-50B
C233	87-012-274-080		CHIP CAP,U 1000P-50B
C236	87-010-831-080		C-CAP,U,0.1-16F

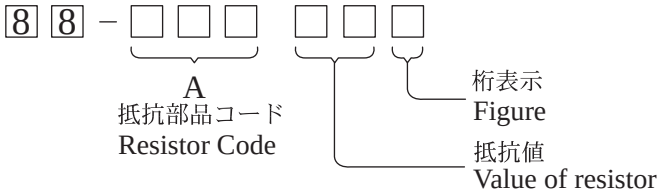
REF. NO	PART NO.	KANRI NO.	DESCRIPTION
C300	87-010-831-080		C-CAP,U,0.1-16F
C301	87-010-831-080		C-CAP,U,0.1-16F
C302	87-010-831-080		C-CAP,U,0.1-16F
C305	87-016-462-080		C-CAP,S 1-16 F
C307	87-010-831-080		C-CAP,U,0.1-16F
C308	87-010-831-080		C-CAP,U,0.1-16F
C311	87-010-662-080		C-CAP,E 22-6.3
C312	87-012-195-080		C-CAP,U 100P-50CH
C321	87-012-274-080		CHIP CAP,U 1000P-50B
C322	87-012-274-080		CHIP CAP,U 1000P-50B
C323	87-012-274-080		CHIP CAP,U 1000P-50B
C324	87-012-274-080		CHIP CAP,U 1000P-50B
C325	87-012-274-080		CHIP CAP,U 1000P-50B
C400	87-010-831-080		C-CAP,U,0.1-16F
C401	87-010-831-080		C-CAP,U,0.1-16F
C402	87-010-831-080		C-CAP,U,0.1-16F
C403	87-010-831-080		C-CAP,U,0.1-16F
C404	87-010-831-080		C-CAP,U,0.1-16F
C405	87-010-661-080		C-CAP,E 10-16
C406	87-010-779-080		C-CAP,E 100-6.3
C407	87-012-197-080		C-CAP,U 150P-50 CH
C408	87-012-197-080		C-CAP,U 150P-50 CH
C411	87-012-271-080		CAP, U 560P-50
C412	87-012-271-080		CAP, U 560P-50
C413	87-012-197-080		C-CAP,U 150P-50 CH
C414	87-012-197-080		C-CAP,U 150P-50 CH
C417	87-012-268-080		C-CAP,U 330P-50 B
C418	87-012-268-080		C-CAP,U 330P-50 B
C423	87-012-286-080		CAP, U 0.01-25
C424	87-012-286-080		CAP, U 0.01-25
C429	87-012-286-080		CAP, U 0.01-25
C430	87-012-286-080		CAP, U 0.01-25
C431	87-010-779-080		C-CAP,E 100-6.3
C434	87-010-831-080		C-CAP,U,0.1-16F
C501	87-010-831-080		C-CAP,U,0.1-16F
C502	87-010-831-080		C-CAP,U,0.1-16F
C503	87-010-662-080		C-CAP,E 22-6.3
C504	87-010-831-080		C-CAP,U,0.1-16F
C505	87-010-662-080		C-CAP,E 22-6.3
C506	87-010-831-080		C-CAP,U,0.1-16F
C507	87-010-661-080		C-CAP,E 10-16
C508	87-010-831-080		C-CAP,U,0.1-16F
C509	87-010-662-080		C-CAP,E 22-6.3
C510	87-010-831-080		C-CAP,U,0.1-16F
C511	87-010-661-080		C-CAP,E 10-16
C513	87-010-661-080		C-CAP,E 10-16
C514	87-010-661-080		C-CAP,E 10-16
C515	87-012-337-080		C-CAP,U 56P-50 CH
C516	87-012-337-080		C-CAP,U 56P-50 CH
C517	87-012-278-080		C-CAP,U 2200P-50 B
C518	87-012-278-080		C-CAP,U 2200P-50 B
C519	87-010-831-080		C-CAP,U,0.1-16F
C520	87-010-661-080		C-CAP,E 10-16
C521	87-010-831-080		C-CAP,U,0.1-16F
C522	87-010-661-080		C-CAP,E 10-16
C523	87-010-662-080		C-CAP,E 22-6.3
C524	87-010-662-080		C-CAP,E 22-6.3
C525	87-012-274-080		CHIP CAP,U 1000P-50B
C526	87-012-274-080		CHIP CAP,U 1000P-50B
C527	87-010-661-080		C-CAP,E 10-16
C528	87-010-661-080		C-CAP,E 10-16
C530	87-010-831-080		C-CAP,U,0.1-16F
C531	87-010-831-080		C-CAP,U,0.1-16F
C600	87-010-662-080		C-CAP,E 22-6.3
C601	87-010-779-080		C-CAP,E 100-6.3
C602	87-010-779-080		C-CAP,E 100-6.3
C603	87-010-662-080		C-CAP,E 22-6.3
C604	87-010-779-080		C-CAP,E 100-6.3
C605	87-012-286-080		CAP, U 0.01-25
C607	87-010-831-080		C-CAP,U,0.1-16F

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
C608	87-010-831-080		C-CAP,U,0.1-16F
CN400	87-A60-027-080		C-CONN,8P H WHT
CN401	87-A60-062-010		CONN,05P V 9604S-05C
FB501	87-A90-828-080		C-F-BEAD, BK1608LM182
L100	87-A50-117-080		C-COIL,10UHLQH3C
L101	87-A50-012-080		C-COIL,100UH LQH3C
L102	87-A50-117-080		C-COIL,10UHLQH3C
L103	87-A50-117-080		C-COIL,10UHLQH3C
L201	87-A50-117-080		C-COIL,10UHLQH3C
L202	87-A50-117-080		C-COIL,10UHLQH3C
L203	87-A50-116-080		C-COIL,4.7UHLQH3C
L301	87-A50-117-080		C-COIL,10UHLQH3C
L501	87-A50-116-080		C-COIL,4.7UHLQH3C
L502	87-A50-116-080		C-COIL,4.7UHLQH3C
L503	87-A50-116-080		C-COIL,4.7UHLQH3C
L504	87-005-774-080		C-COIL,4BLH
L505	87-005-774-080		C-COIL,4BLH
L611	87-A50-163-080		C-COIL,ZBFS5101-PT
L612	87-005-512-080		C-COIL,BLM21A05
L613	87-005-512-080		C-COIL,BLM21A05
L614	87-A50-163-080		C-COIL,ZBFS5101-PT
L615	87-A90-034-080		C-FLTR,EMI BLM41P750
L616	87-A50-163-080		C-COIL,ZBFS5101-PT
R423	87-025-564-080		C-RES,U M/F 47K D
R424	87-025-564-080		C-RES,U M/F 47K D
R425	87-022-583-080		C-RES,U M/F 12K D
R426	87-022-583-080		C-RES,U M/F 12K D
LOAD C.B			
M450	87-A90-672-010		MOT,M25E-4
SW451	87-A90-673-010		SW,MICRO ESE11SH1C
SW452	87-A90-117-010		SW,PUSH 1-1-1 MPU103
MECHA C.B			
SW400	87-A90-611-010		SW,PUSH 3-2-2 MPU20300MLB0
SW401	87-A90-612-010		SW,PUSH 2-1-1 MPU10371MLB1
HEAD FLEX C.B			

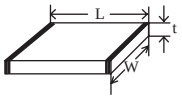
- Regarding connectors, they are not stocked as they are not the initial order items.
  The connectors are available after they are supplied from connector manufacturers upon the order is received.

○チップ抵抗部品コード／CHIP RESISTOR PART CODE

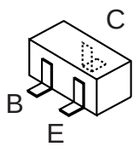
チップ抵抗部品コードの成り立ち
Chip Resistor Part Coding



チップ抵抗
Chip resistor

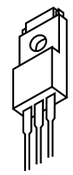
容量 Wattage	種類 Type	許容誤差 Tolerance	記号 Symbol	寸法／Dimensions (mm) 外形／Form	L	W	t	抵抗コード ：A Resistor Code：A
1/16W	1005	±5%	CJ		1.0	0.5	0.35	104
1/16W	1608	±5%	CJ		1.6	0.8	0.45	108
1/10W	2125	±5%	CJ		2	1.25	0.45	118
1/8W	3216	±5%	CJ		3.2	1.6	0.55	128

TRANSISTOR ILLUSTRATION

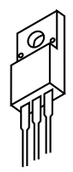


2SA1235
2SA1588
2SC3052
2SC4116
DTC144EK

RN1305
RN2305
RT1N144C
RT1P141C
RT1P144C

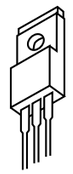


2SB1370

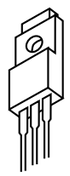


2SB1375

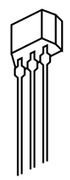
2SC535
CSD655
KTC3199



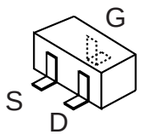
2SC4115



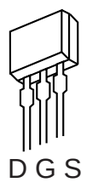
2SD1933



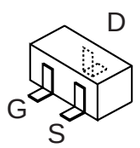
2SK2541



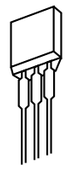
2SJ106



2SJ460



2SK2158

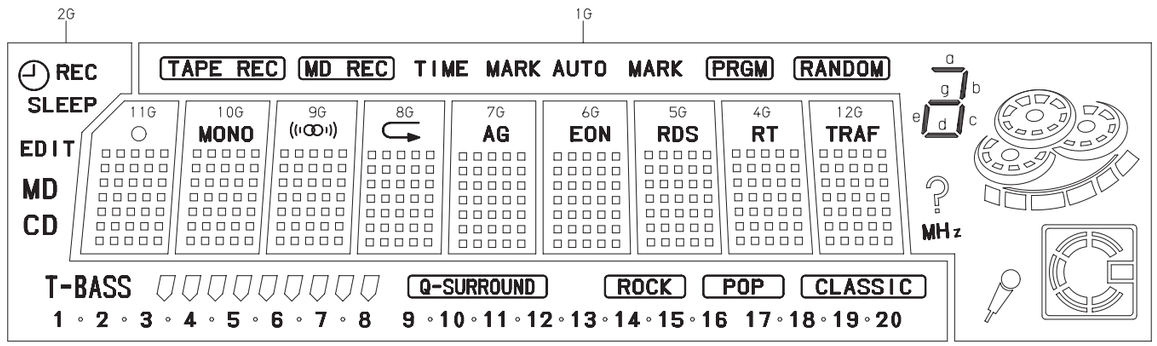


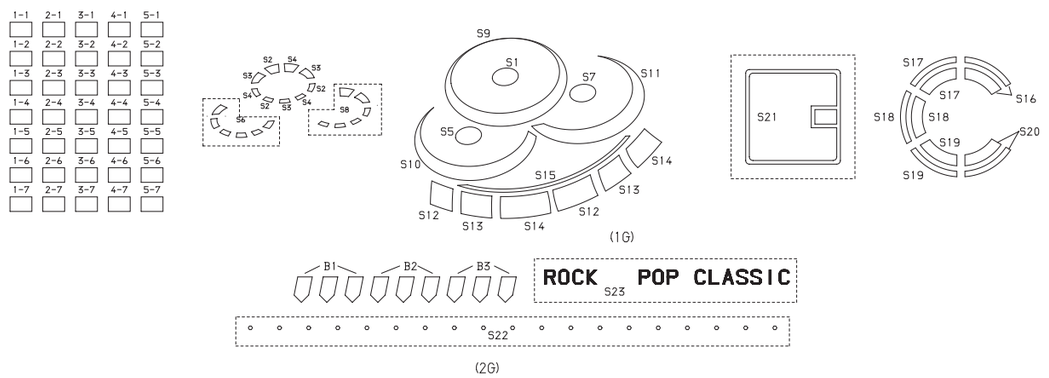
DTA114ES
DTA144ES
DTC114ES
DTC144ES

KTA1266
KTC3198

FL (11-BT-172GNK) GRID ASSIGNMENT/ANODE CONNECTION

GRID ASSIGNMENT

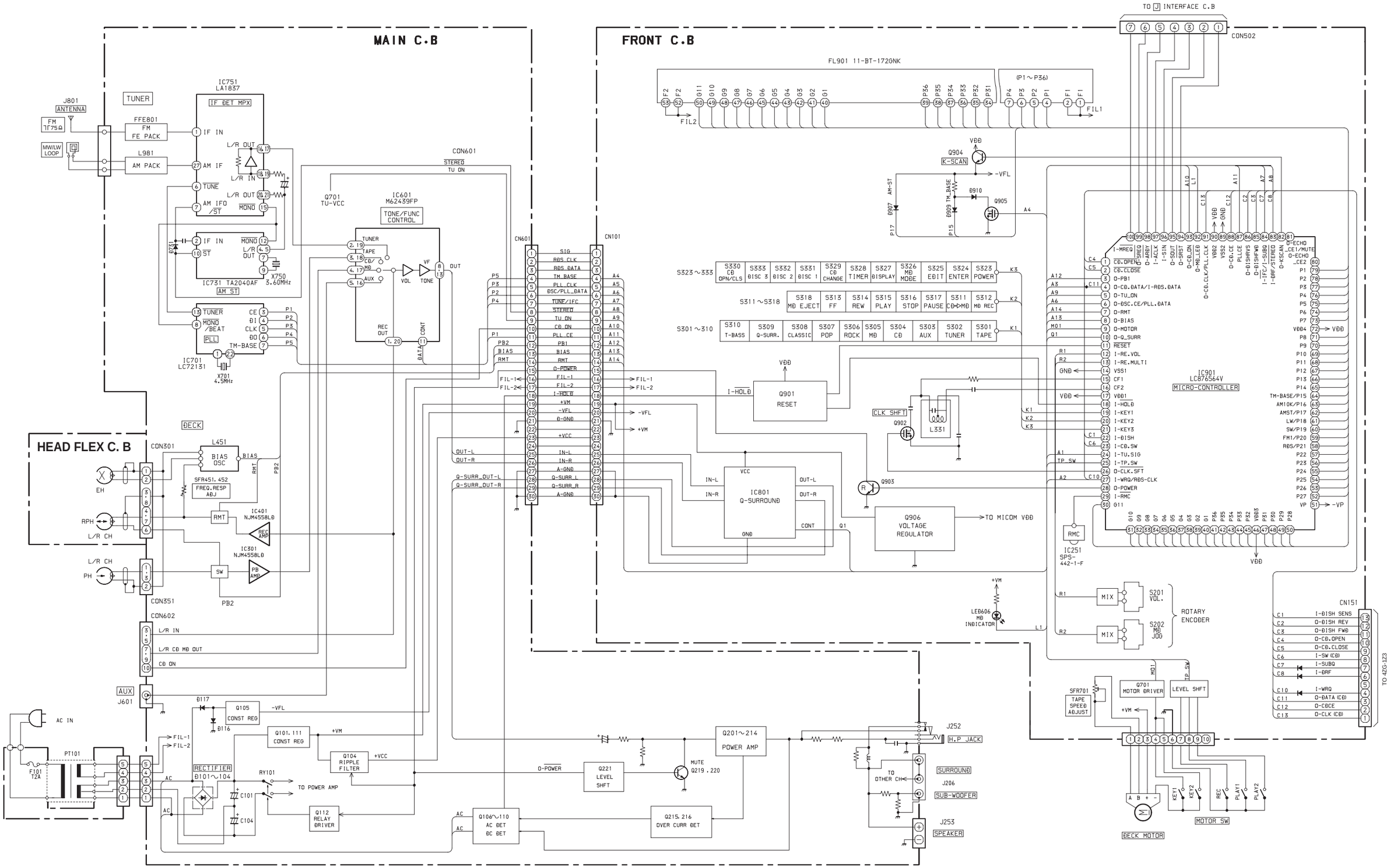




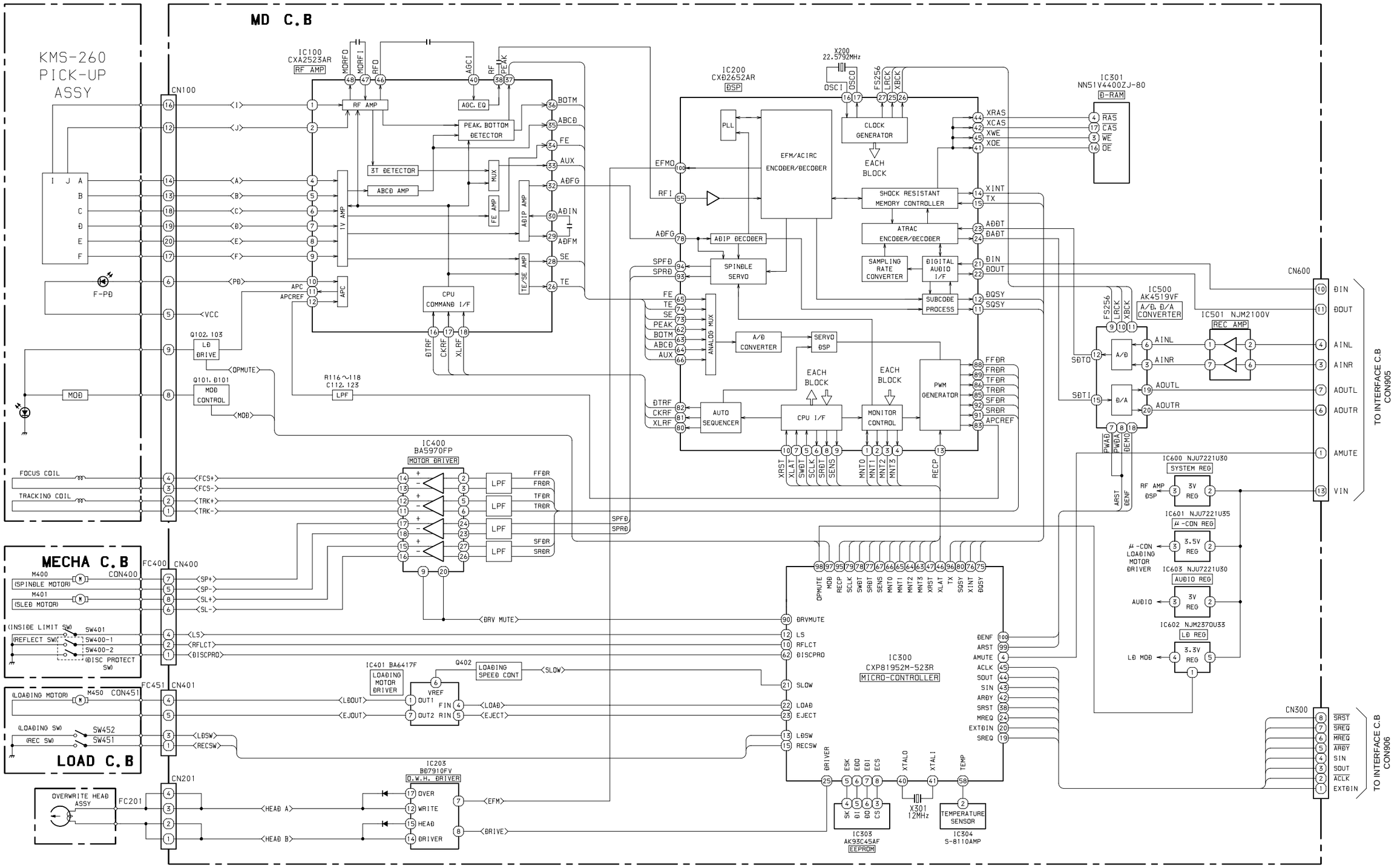
ANODE CONNECTION

	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1	○	MONO	((∞))	⮌	AG	EON	RDS	RT	TRAF	REC	S21
P2	1-1	1-1	1-1	1-1	1-1	1-1	1-1	1-1	1-1	🕘	S16
P3	2-1	2-1	2-1	2-1	2-1	2-1	2-1	2-1	2-1	SLEEP	S17
P4	3-1	3-1	3-1	3-1	3-1	3-1	3-1	3-1	3-1	EDIT	S18
P5	4-1	4-1	4-1	4-1	4-1	4-1	4-1	4-1	4-1	MD	S19
P6	5-1	5-1	5-1	5-1	5-1	5-1	5-1	5-1	5-1	CD	S20
P7	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1	🎤
P8	2-2	2-2	2-2	2-2	2-2	2-2	2-2	2-2	2-2	2	S12
P9	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3	S13
P10	4-2	4-2	4-2	4-2	4-2	4-2	4-2	4-2	4-2	4	S14
P11	5-2	5-2	5-2	5-2	5-2	5-2	5-2	5-2	5-2	5	S15
P12	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	6	S7
P13	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	7	S8
P14	3-3	3-3	3-3	3-3	3-3	3-3	3-3	3-3	3-3	8	S11
P15	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	9	S1
P16	5-3	5-3	5-3	5-3	5-3	5-3	5-3	5-3	5-3	10	S2
P17	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	S22	S3
P18	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	11	S4
P19	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	12	S9
P20	4-4	4-4	4-4	4-4	4-4	4-4	4-4	4-4	4-4	13	S5
P21	5-4	5-4	5-4	5-4	5-4	5-4	5-4	5-4	5-4	14	S6
P22	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	15	S10
P23	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5	16	b
P24	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	17	c
P25	4-5	4-5	4-5	4-5	4-5	4-5	4-5	4-5	4-5	18	a, g, d
P26	5-5	5-5	5-5	5-5	5-5	5-5	5-5	5-5	5-5	19	e
P27	1-6	1-6	1-6	1-6	1-6	1-6	1-6	1-6	1-6	20	MHz
P28	2-6	2-6	2-6	2-6	2-6	2-6	2-6	2-6	2-6	T-BASS	?
P29	3-6	3-6	3-6	3-6	3-6	3-6	3-6	3-6	3-6	B1	RANDOM
P30	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	B2	PRGM
P31	5-6	5-6	5-6	5-6	5-6	5-6	5-6	5-6	5-6	B3	AUTO MARK
P32	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	Q-SURROUND	TIME MARK
P33	2-7	2-7	2-7	2-7	2-7	2-7	2-7	2-7	2-7	(ROCK)	MD REC
P34	3-7	3-7	3-7	3-7	3-7	3-7	3-7	3-7	3-7	(POP)	TAPE REC
P35	4-7	4-7	4-7	4-7	4-7	4-7	4-7	4-7	4-7	(CLASSIC)	—
P36	5-7	5-7	5-7	5-7	5-7	5-7	5-7	5-7	5-7	S23	—

BLOCK DIAGRAM-1 (MAIN)

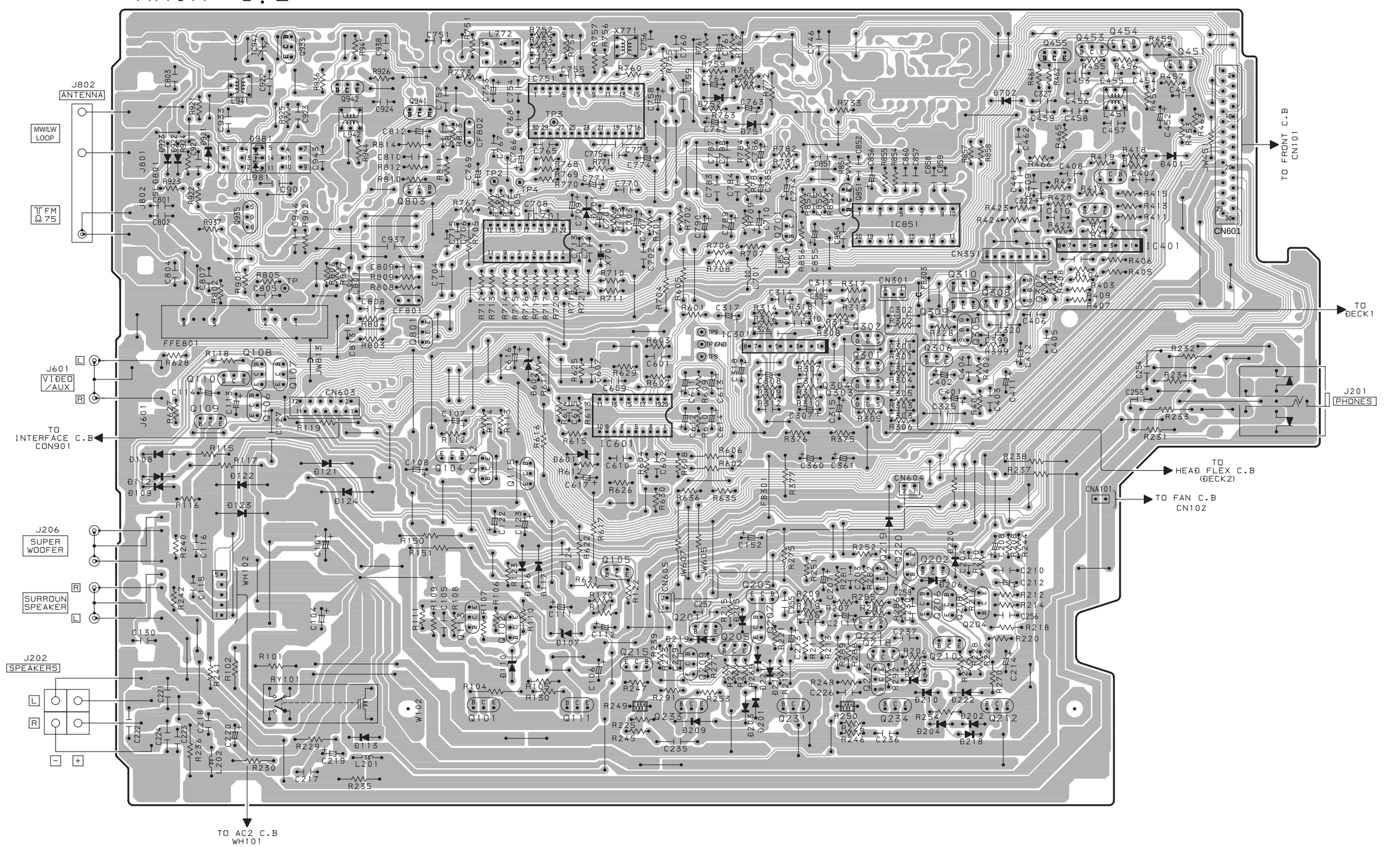


BLOCK DIAGRAM-2 (MD)

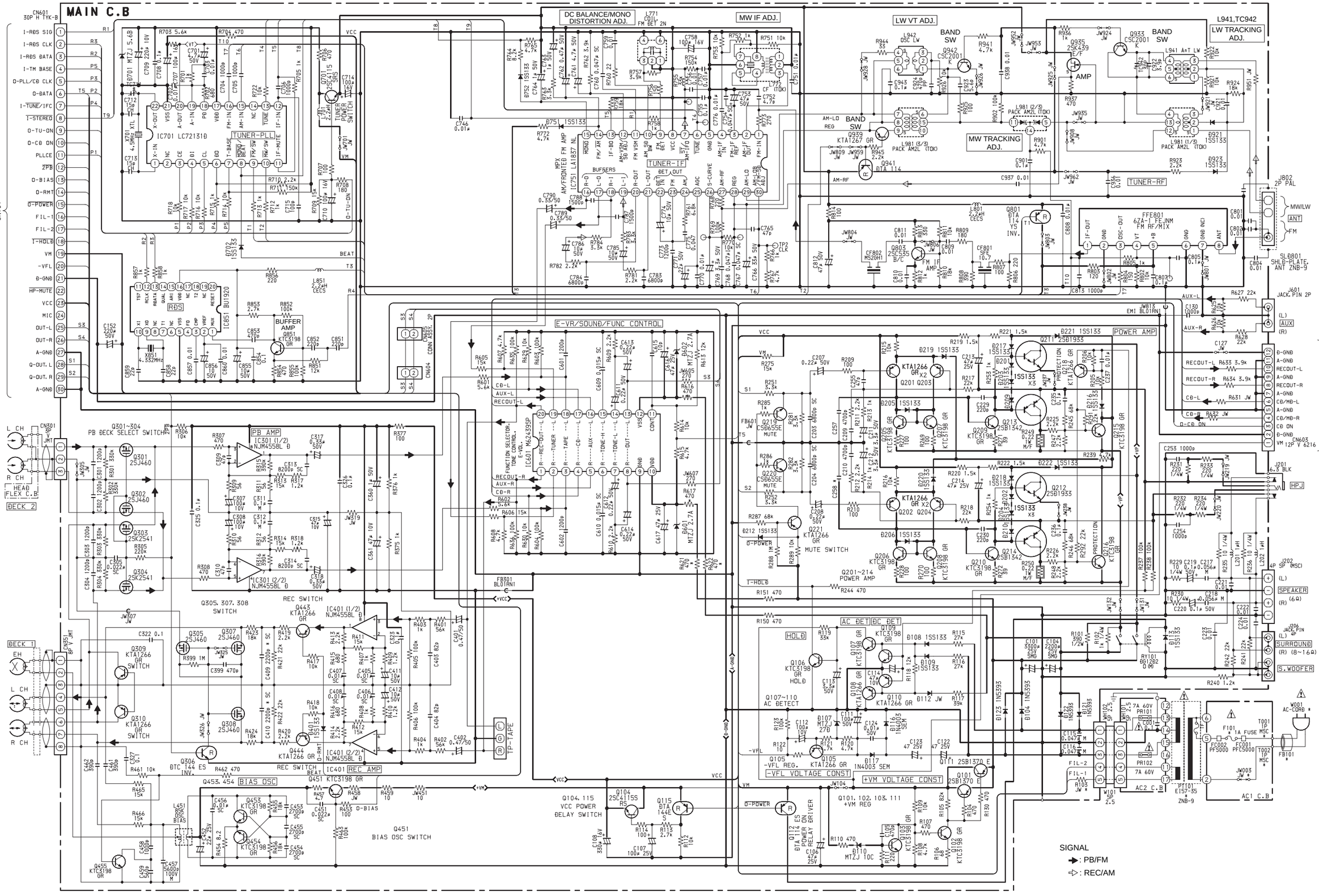


WIRING-1 (MAIN)

MAIN C.B



SCHEMATIC DIAGRAM-1 (MAIN)



WIRING-2 (FRONT)

FRONT C.B

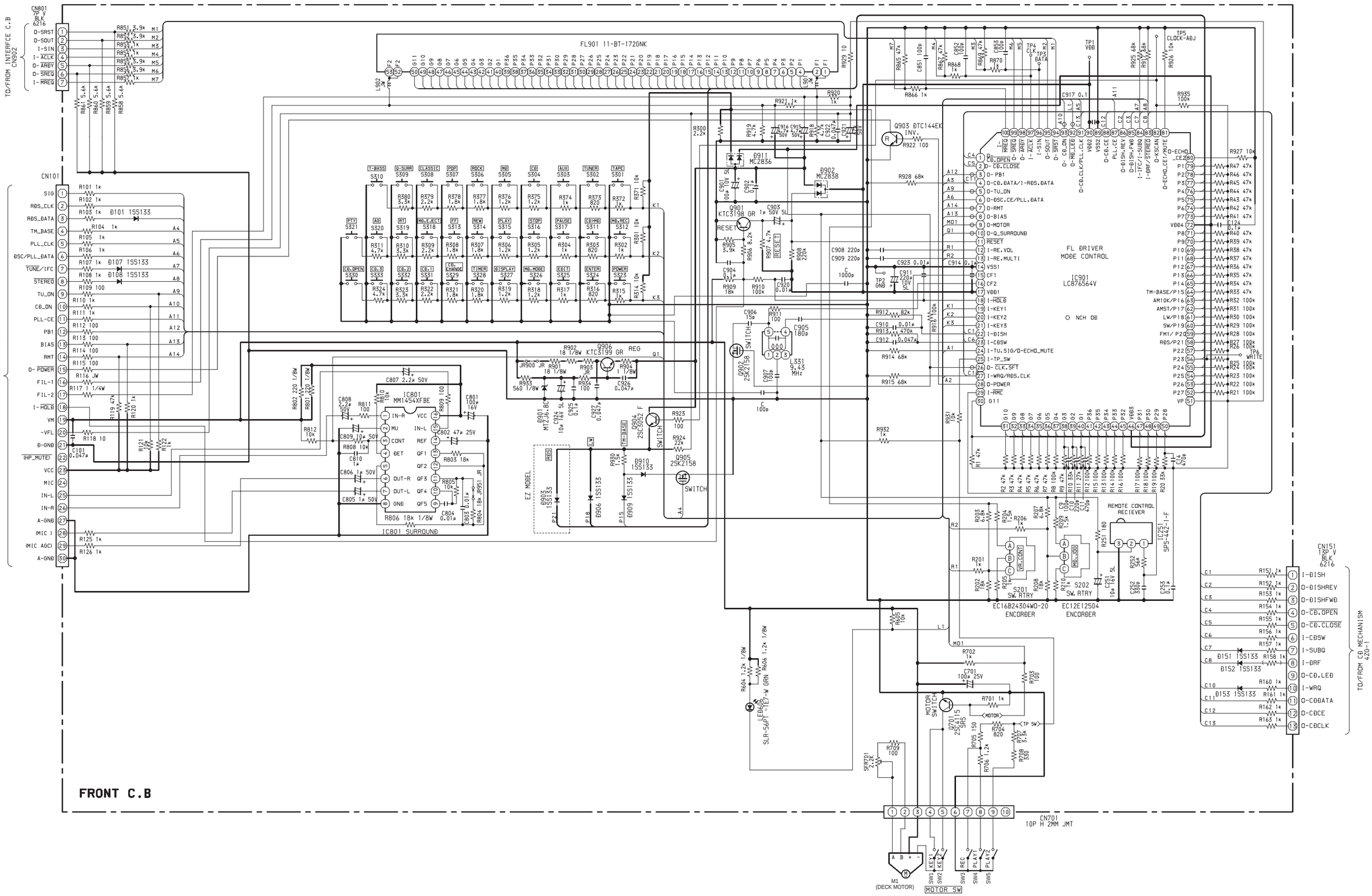
TO CĐ MECHANISM
4ZG-1

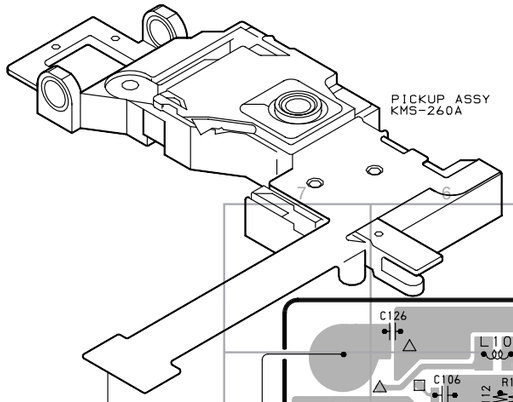
TO MAIN C.B CN601

TO INTERFACE C.B
CON902

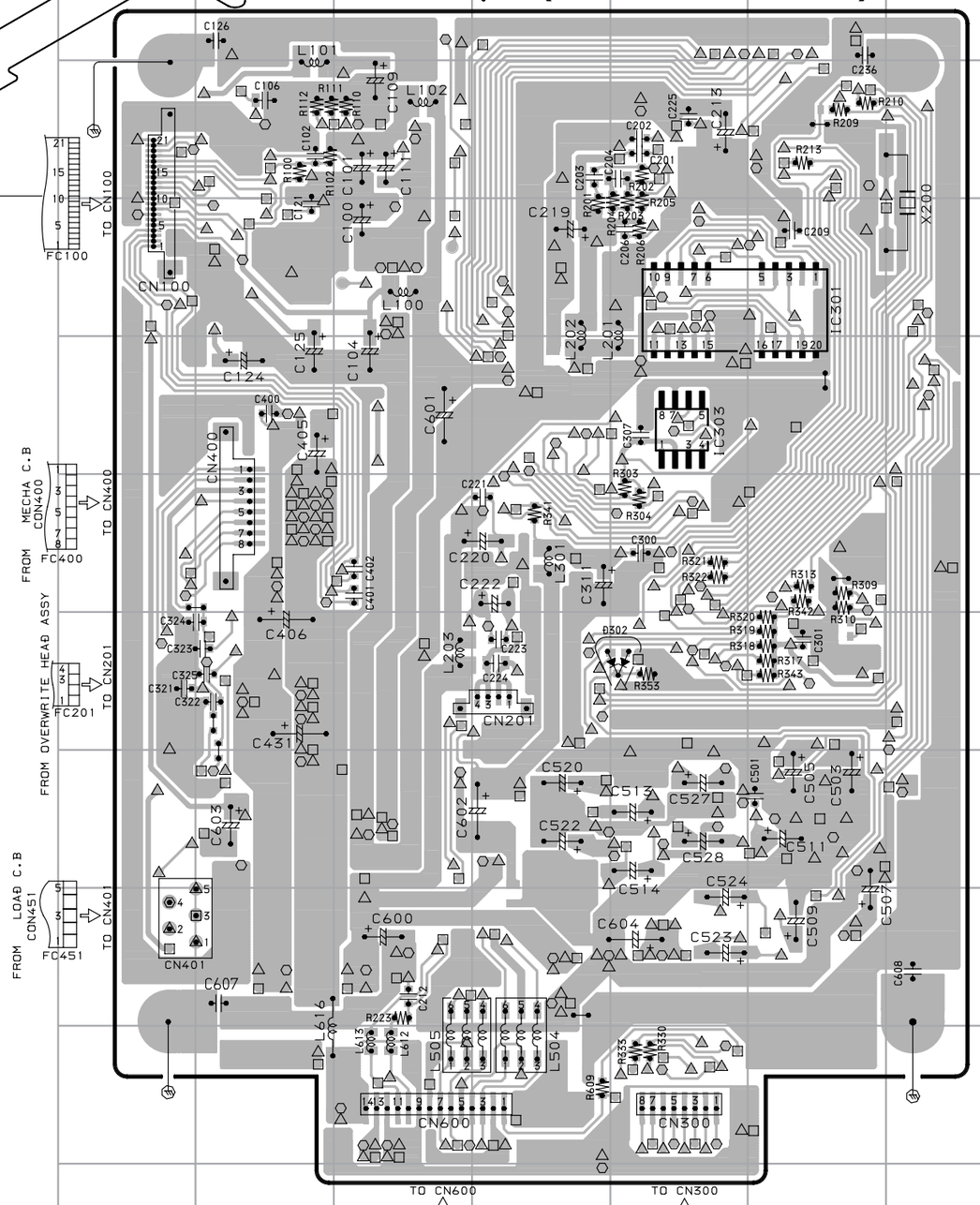
TO TAPE MECHA

SCHEMATIC DIAGRAM-2 (FRONT)

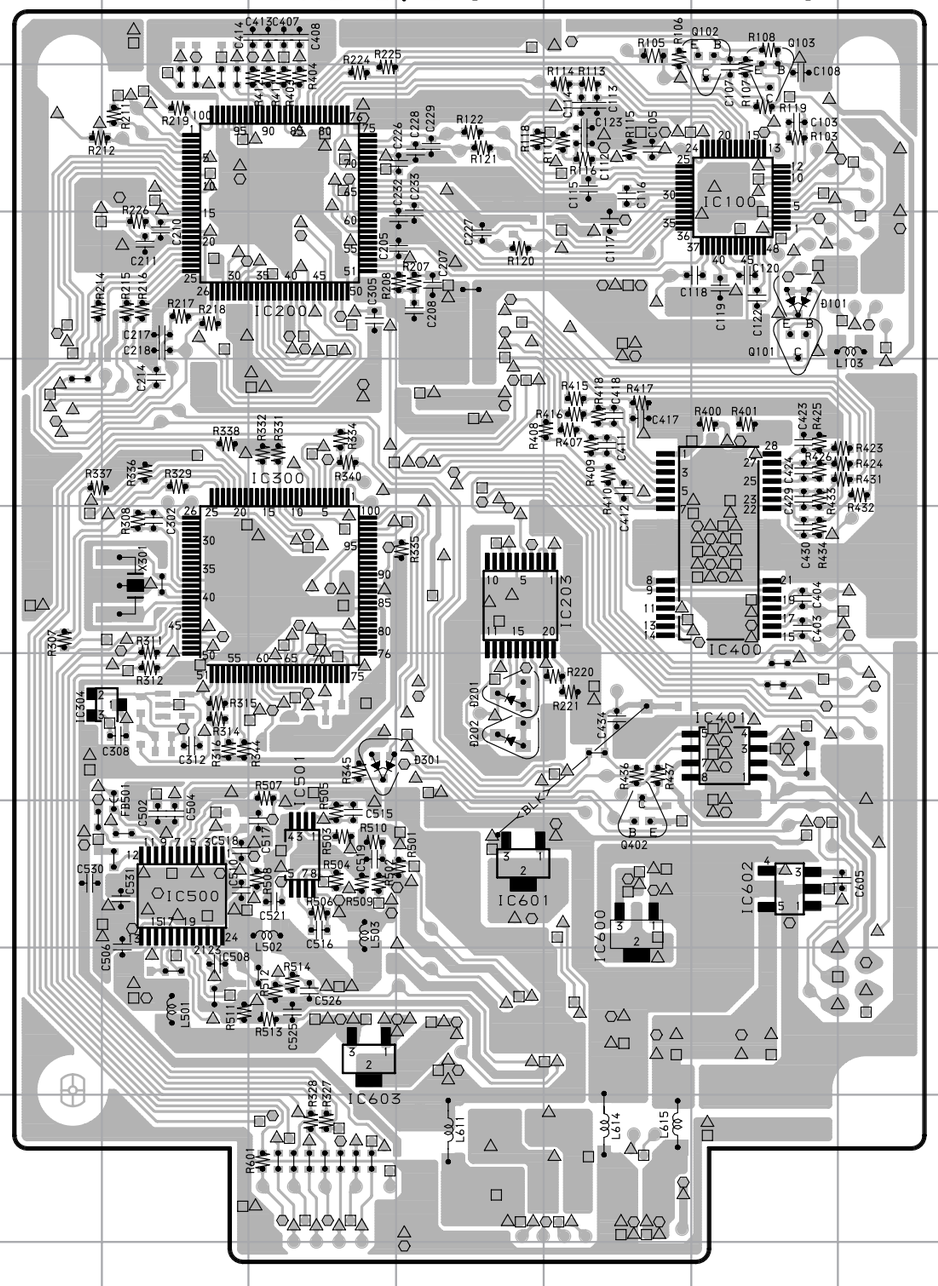




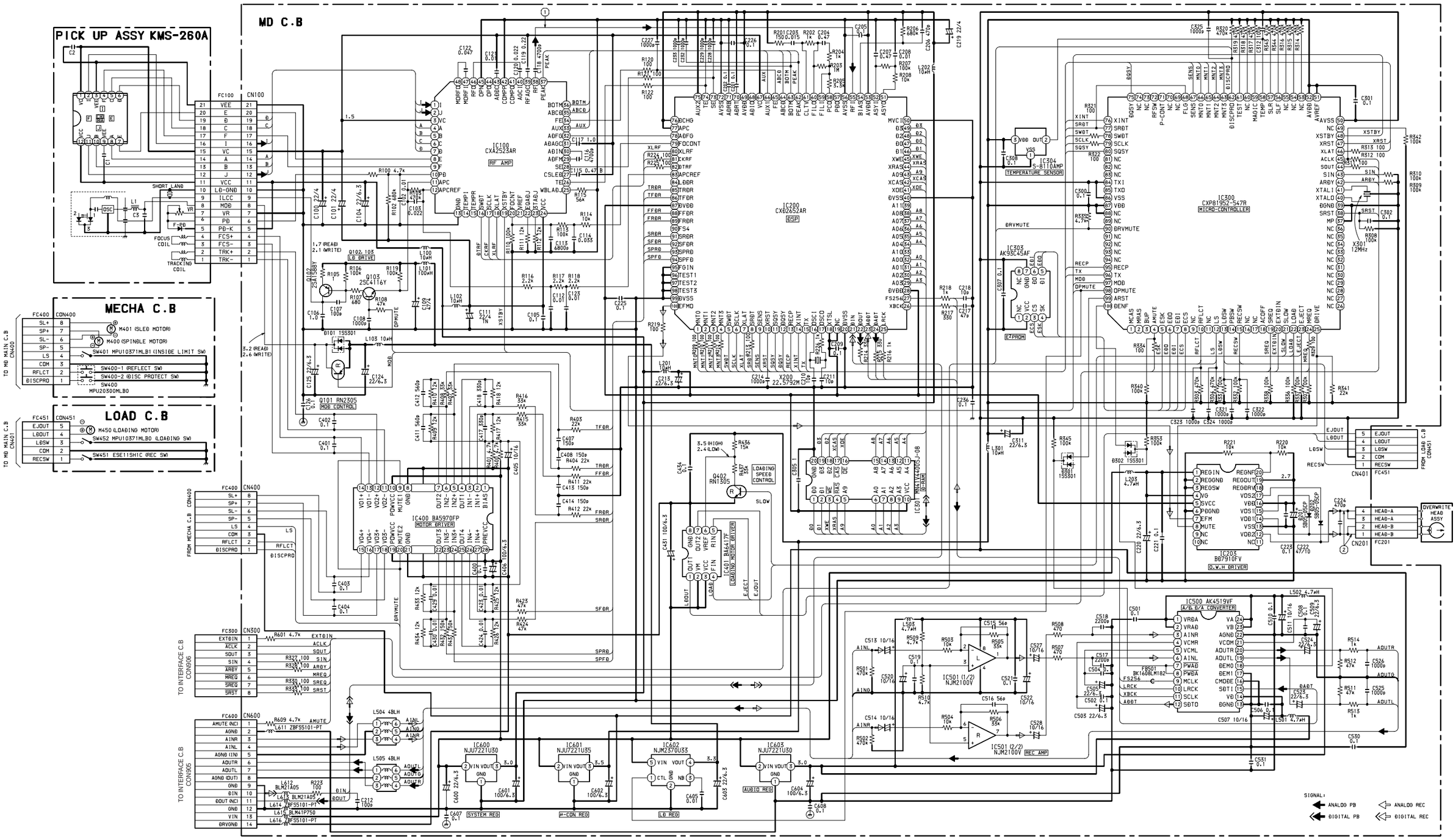
MD C.B (COMPONENT SIDE)



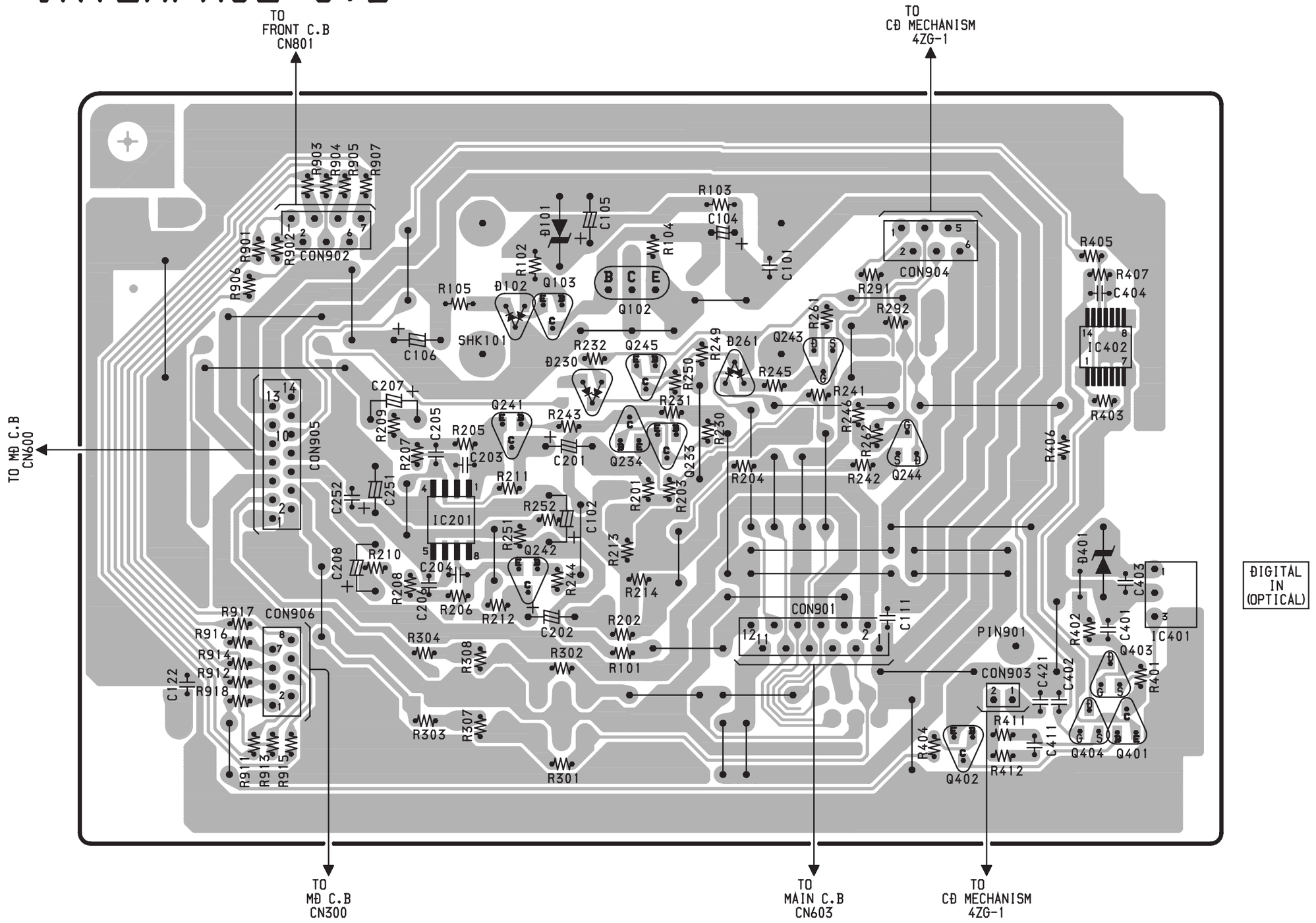
MD C.B (CONDUCTOR SIDE)



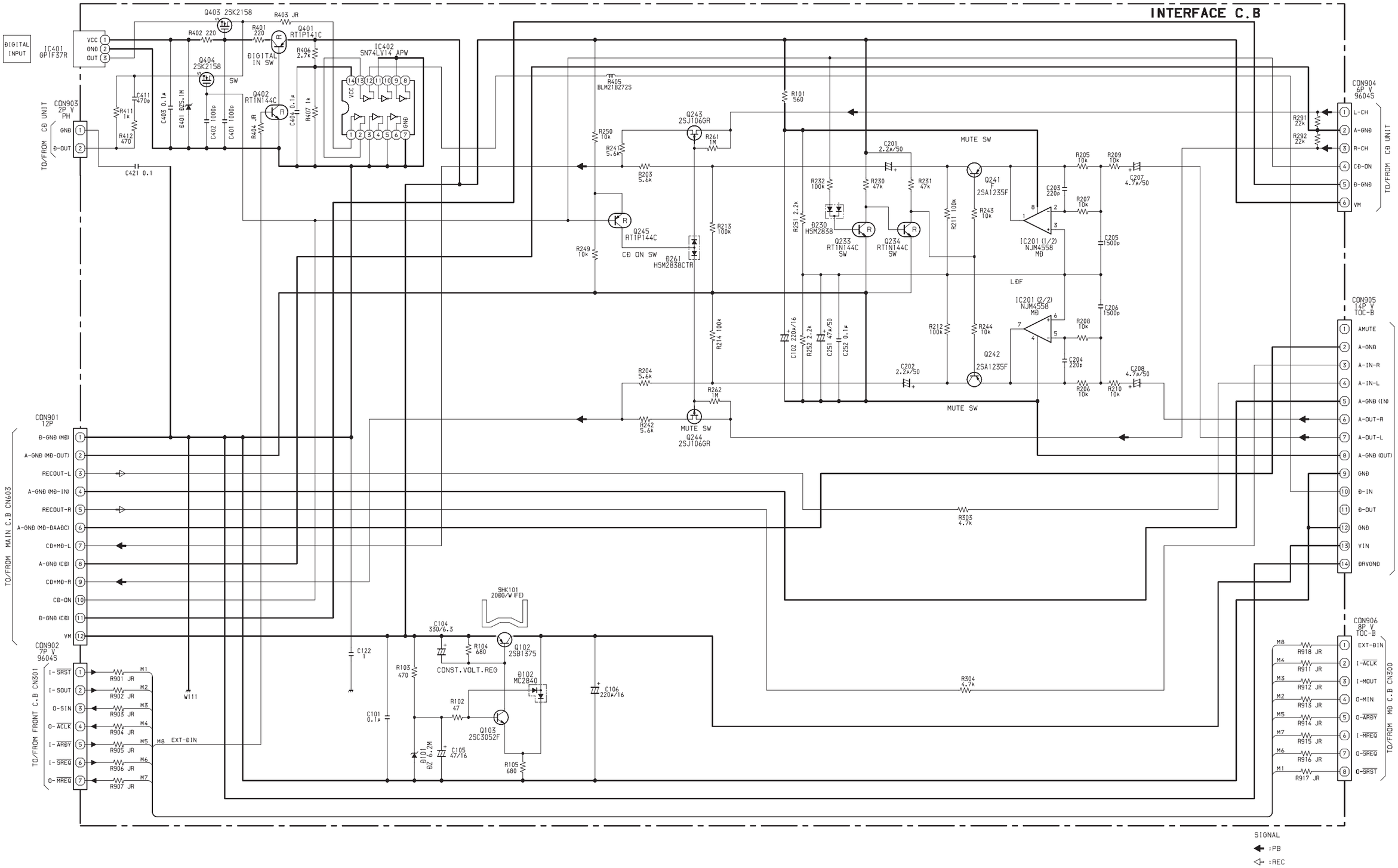
SCHEMATIC DIAGRAM-3 (MD)



INTERFACE C.B

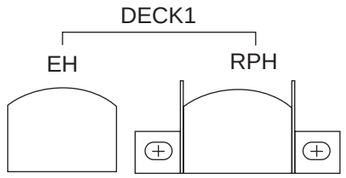


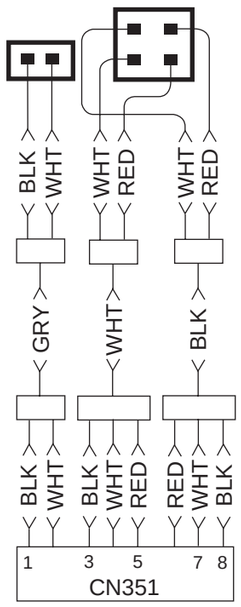
SCHEMATIC DIAGRAM-4 (INTERFACE)



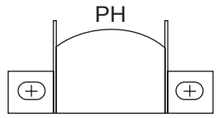
DECK2

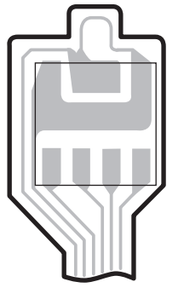
HEAD FLEX C. B

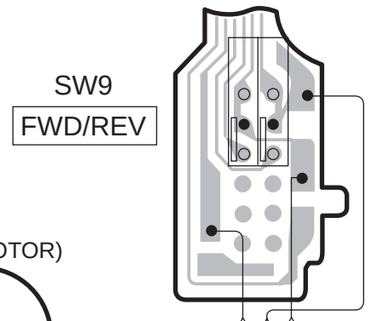


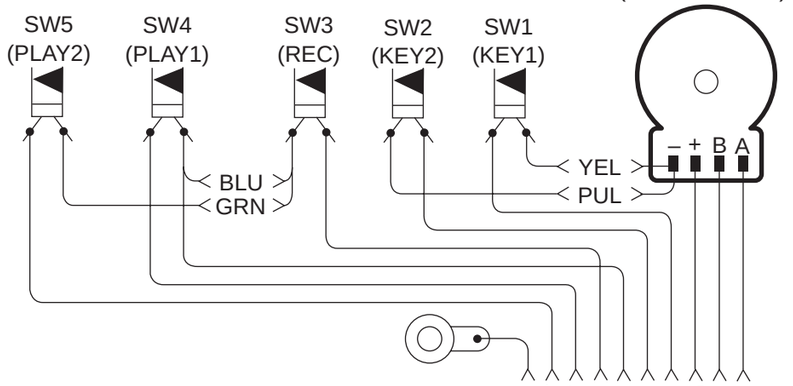


TO MAIN C. B
CON351

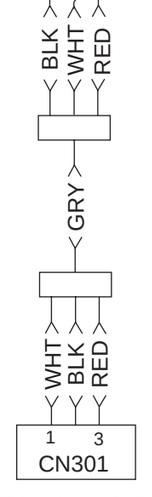




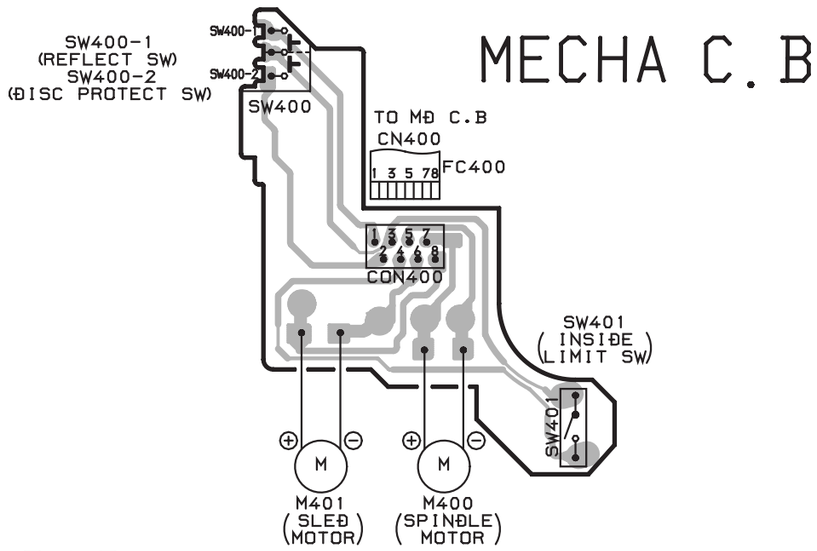


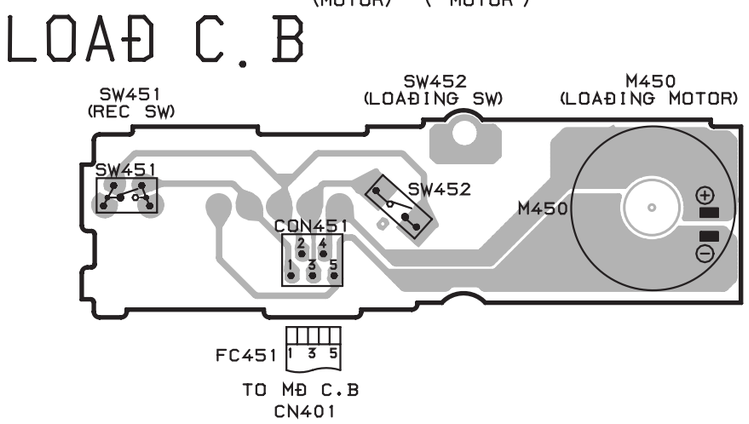


TO FRONT C. B
CN701

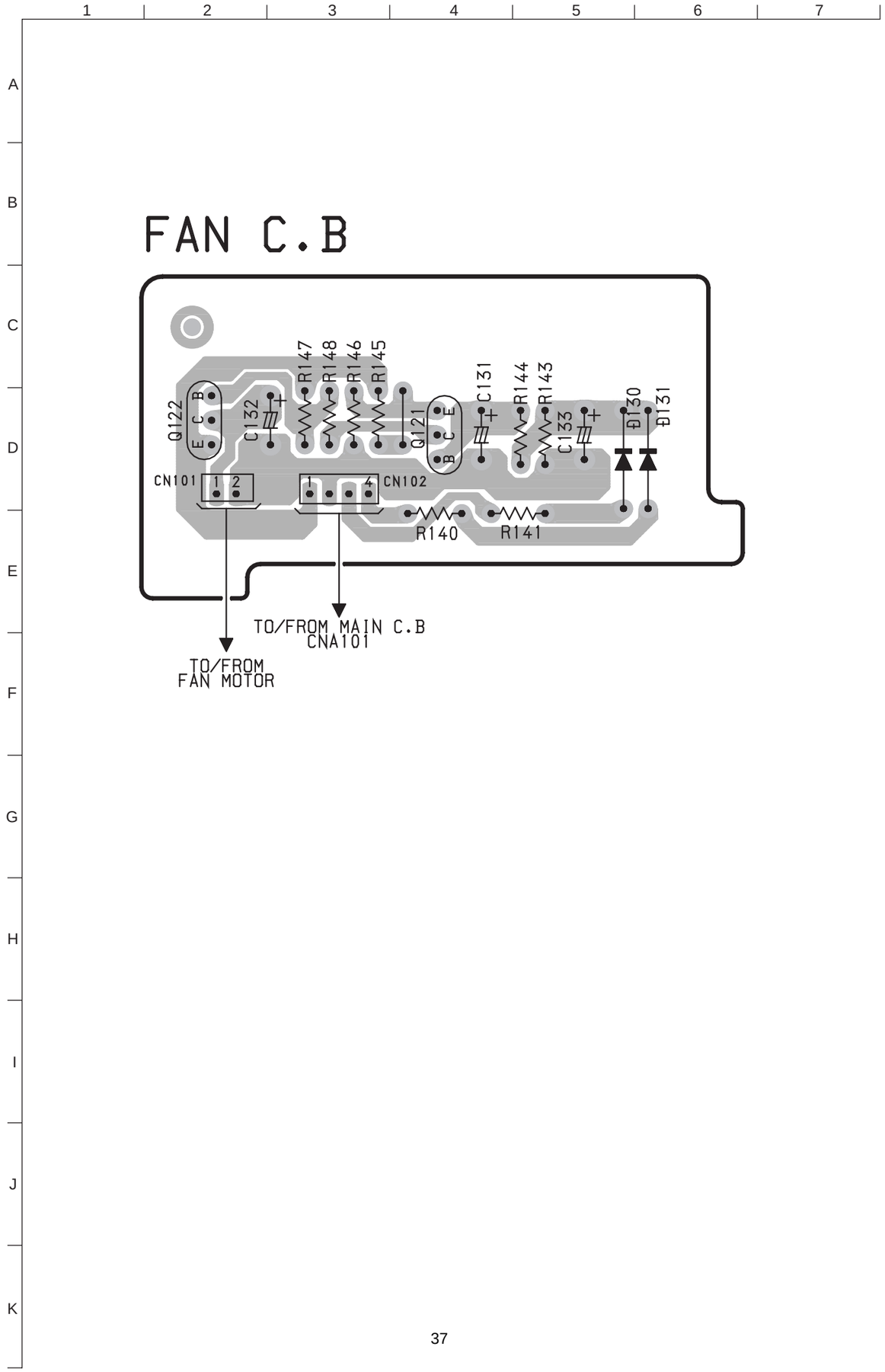


TO MAIN C. B
CON301

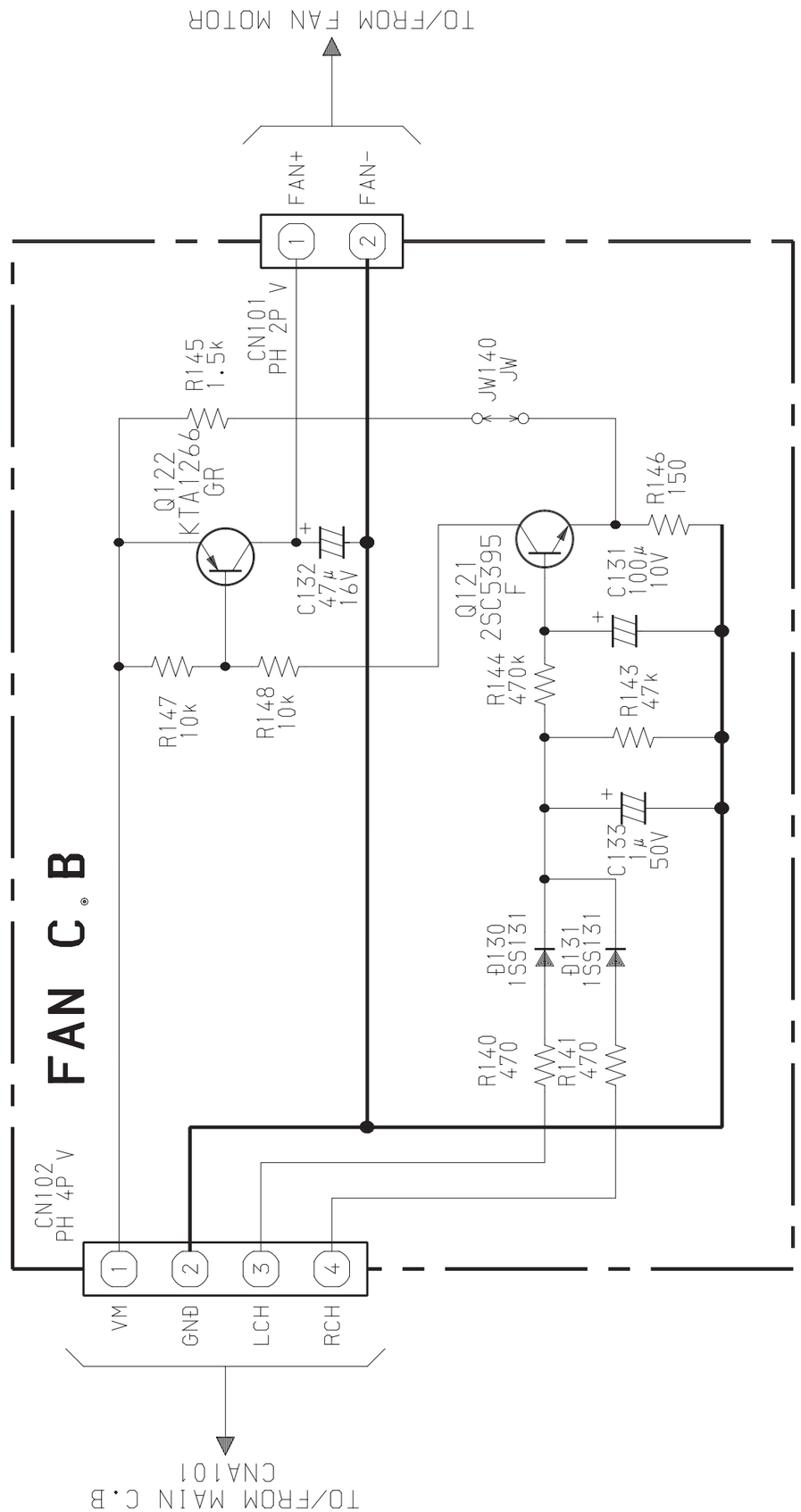




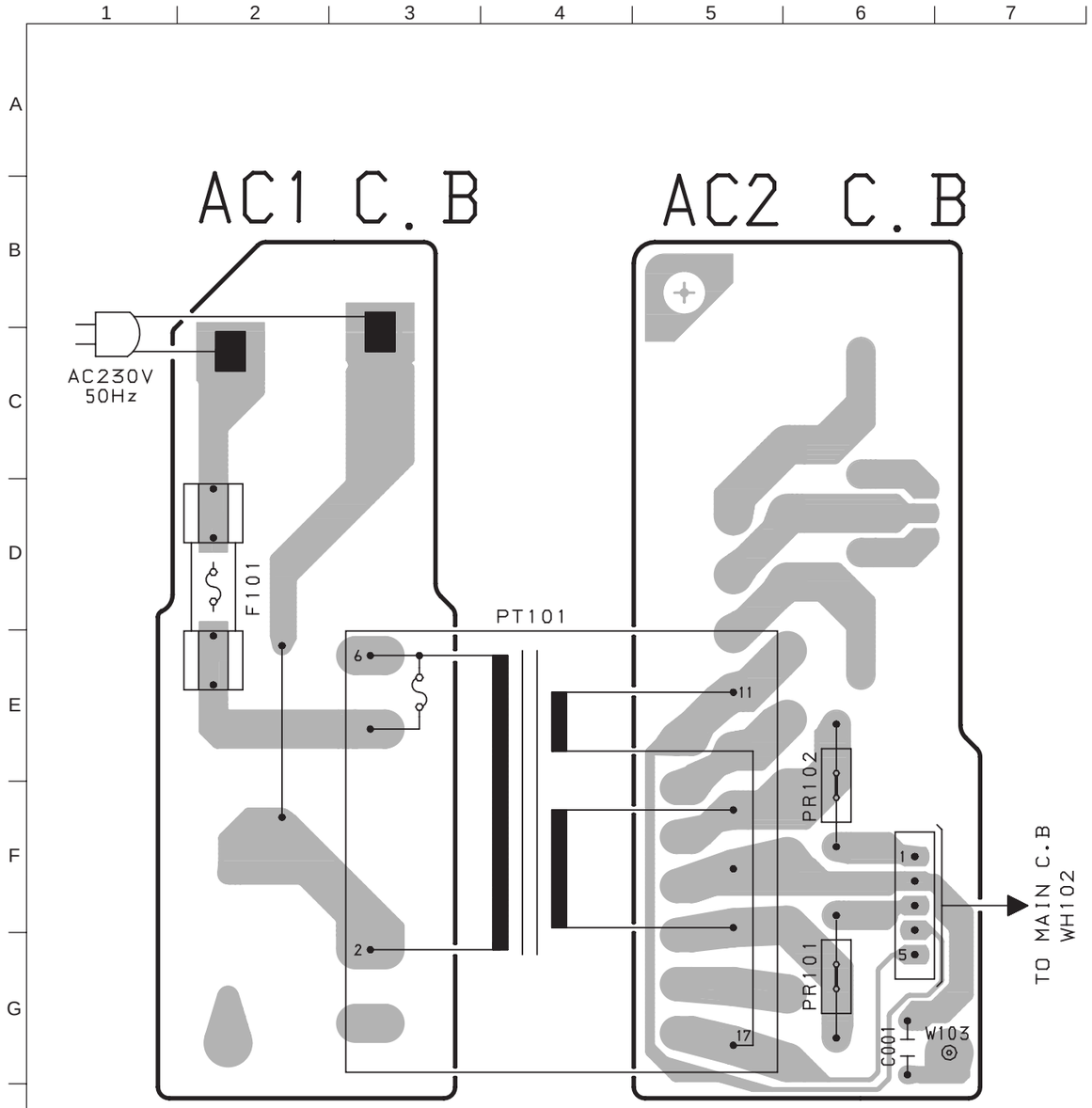
WIRING-6 (FAN)



SCHEMATIC DIAGRAM-5 (FAN)



WIRING-7 (PT)



TEST MODE < CD >

1. How to Start the CD Test Mode

While pressing the function CD button, insert the AC plug to the wall outlet. The message “CD TEST” appears on the FL tube and the test mode starts.

2. How to Exit the CD Test Mode

Exit the CD test mode by any of the following procedures.

- Press the function button (except the CD function button.)
- Press the main power switch.
- Disconnect the AC plug.

3. Function Descriptions on the CD Test Mode

After starting the test mode, press the desired button to check the following items.

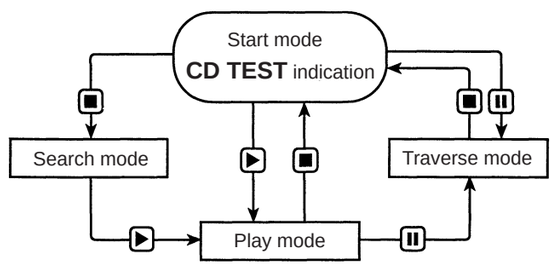
Mode	Operation	FL indication	Function	Contents
Start mode		Lights	• Initial status	
(Sled mode)	⏮ ⏭ button	**CD TEST**	• The pickup moves to the outermost track • The pickup moves to the innermost track * Note 1 (Normal operation as long as the message CD is being played)	• Sled servo • Sled operation check
Search mode	■ button	**CD**	• Normal luminescence of laser diode (CD block power ON) • Continuos focus searching * Note 2 (The pick-up lens repeats the full-swing up and down motions.) • Spindle motor continuos kick rotation.	• APC circuit check • Laser current measurement Focus servo • Focus search waveform check • Focus error waveform check (FOK/FZC does not monitor in search mode)
Play mode	▶ button	**CD1Tr**	• Normal playback • When the TOC reading is not possible, Focus search is continued * Note 2 • Spindle motor kick rotation continues.	• Focus servo/tracking servo • CLV servo/Sled servo • FOK (DRF) check
Traverse mode	⏸ button	**CD1Tr**	• Turn off the tracking servo	• Tracking servo OFF • Tracking balance (radial balance) check

* Note 1: Be careful not to damage the gear because the sled motor rotates when the ⏮ or ⏭ button is pressed even if the pick-up is located in the innermost track or the outermost track.
The sled movement in the test mode is different from the normal operation. The sled moves to the outer track by pressing the ⏮ button and moves to the inner track by pressing the ⏭ button.

* Note 2: The driver IC (IC501) heats up so that the protection circuit starts working when the focus search is continued for 10 minutes or longer. There can be a case that the tracking servo cannot be locked-in under such circumstance.
In such a case, turn off the main power. After cooling down the machine for 10 minutes heat dissipation, restart the machine.

4. Overview of Operation

The each mode can be operated one after another in the order that is shown by the arrow mark in the illustration from the “Start” mode. Change the modes as shown.



TEST MODE < MD >

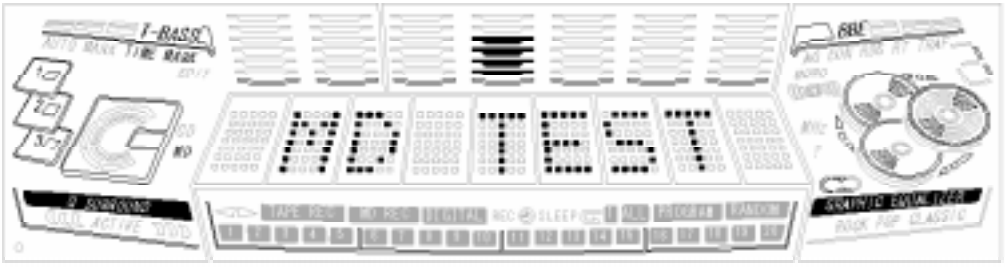
1. How to Start Up the MD Test Mode

While pressing the MD function key, insert the AC plug to the power outlet.

Note: 1) The XR-H220MD can start up the test mode ignoring the mechanism abnormality even if any abnormality is occurring. If the abnormality occurs, disconnect the AC plug quickly.
2) Normal playback/recording cannot be performed while the test mode is in progress.

2. Checking the MD Test Mode

Indication on display



About five seconds later after the test mode has started up, the following message appears and the test mode becomes ready to be operated.

3. How to Exit the MD Test Mode

1) Press the “MD EJECT” key and remove the disc.
2) Disconnect the AC plug.

* If the machine exits the MD test mode by any methods other than the procedure as described above, the machine may operate abnormally when the POWER is turned on next time. In such a case, disconnect the AC plug.

4. How to Switch to Servo Standby Mode

When the test mode has been established, the mode is switched to the servo standby mode by pressing the STOP key. (“ALL SVoFF” is displayed.) Switch this mode to each mode.

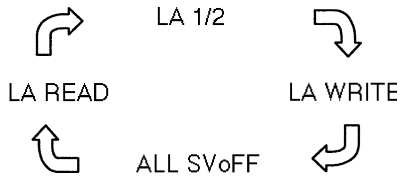
Returns to “ALL SVoFF” by pressing the STOP key from each operation.

5. Checking the Sled Operation

1) Pickup moves to the outmost track by pressing the F.SKIP key in the “ALL SVoFF”. The message “T.SLEDfwd” is displayed.
2) Pickup moves to the innermost track by pressing the B.SKIP key in the “ALL SVoFF”. The message “T.SLEDrvs” is displayed. The graphics equalizer “CLASSIS” on the display lights by turning on the INSIDE LIMIT switch.

6. Checking the Laser Output

1) The laser power output level can be switched by every pressing of the EDIT key in the “ALL SVoFF”. The indication is switched as shown below.



2) After confirming the message, press the STOP key to display the “ALL SVoFF”.

7. Checking the Operation of Loading Mechanism/OWH

The operations of the loading mechanism and the OWH are checked by the procedure below.
The disc is loaded by inserting the MO (PIT) disc to the slot. Confirm that the EON and the AG lights off and the OWH moves up.

CD → MD key.....Loading/OWH DOWN MD EJECT key.....Unloading/OWH UP

* The status of the loading mechanism and OWH can be checked by FL indication.

Status of each indication	Status of loading mechanism and OWH
EON is displayed only	Loading/OWH DOWN
Both AG and EON lights off	Loading/OWH UP
Both AG and EON lights on	Unloading/OWH UP

* The AG indicates the loading SW. The EON and REC SW indicate the status of the REC SW.

Note: The loading cannot be performed by the CD → MD key only without a disc. Insert a disc, or push in the PLATE ASSY, LATCH and turn on the loading switch.

8. Checking the Indication and Turning On/Off of Each Switch

The status of each switch can be confirmed by the indication on the display.

	Indication on the display	Function name	Light on	Light off
①	T-BASS	Laser power	Indicated by the level meter of the three steps (READ-1/2-WRITE)	
②	AUTO MARK	Disc mode	MO DISC (GROOVE)	
③	TIME MARD	Disc mode	PIT DISC (PIT)	
④	ROCK	Write-protection detection SW	REC protection	REC OK
⑤	POP	Reflectance detection SW	High reflectance (PIT DISC)	Low reflectance (MO DISC)
⑥	CLASSIC	INSIDE LIMIT SW	SW ON (innermost track)	SW OFF
⑦	AG	LOADING SW	SW OFF	SW ON
⑧	EON	REC SW	SW OFF	SW ON

Note: The SW ON indicates the status when the switch is pressed.
The loading status is shown by the combination of the AG and EON.

9. Checking the Servo Operation

9-1. Checking the Focus Search/Spindle Kick 1 (Check of S-Curve)

1) The focus search operation and the spindle kick operation can be performed continuously by pressing the REPEAT key in the “ALL SVoFF” state. During this check, the message “FOCUS CHK” is displayed under this conditions. Because these operations are repeated in this setup regardless whether a disc is inserted or not, the S-curve can be checked when a disc is inserted.
2) After checking these operations, press the STOP key to show the message “ALL SVoFF”.

9-2. Checking the Focus Search/Spindle Kick 2

1) The focus search operation and the spindle kick operation can be performed continuously by pressing the PLAY key in the “ALL SVoFF” without the inserted disc. During this check, the message “FOCUS SCH” is displayed.
2) After checking these operations, press the STOP key to show the message “ALL SVoFF”.

9-3. Checking the Focus Servo

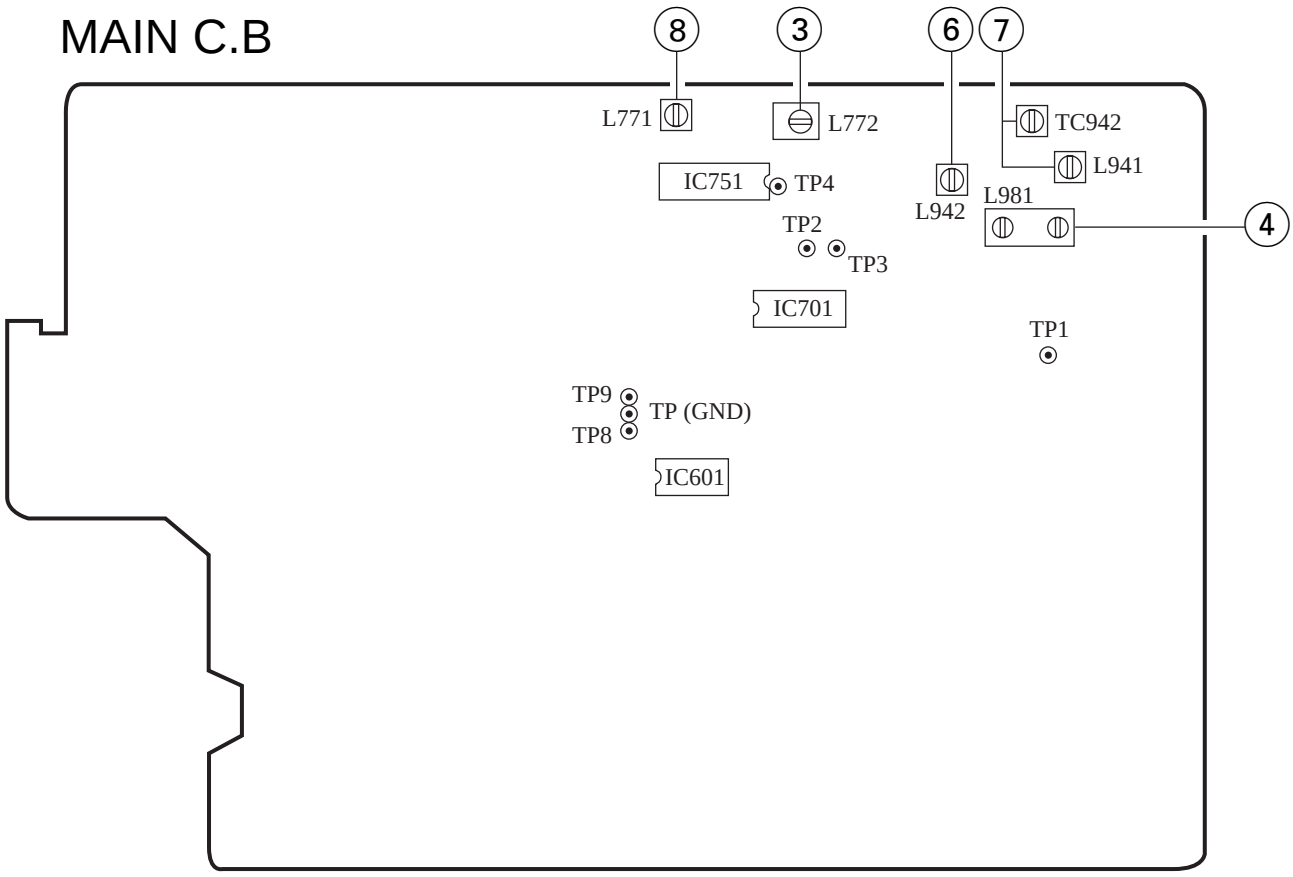
1) Insert a disc.
2) Press the MODE (MD) key until the following servo mode is selected in accordance with the inserted disc.

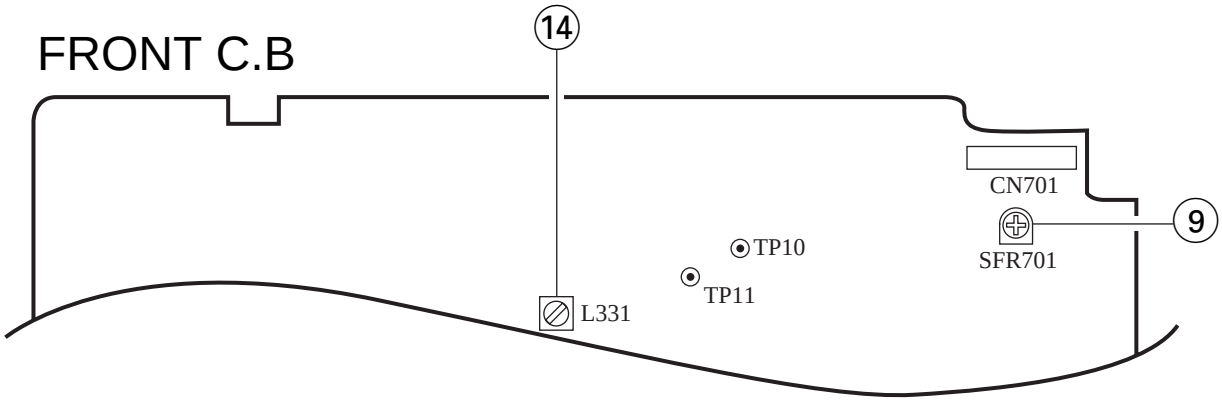
   - MO disc..... “SEL GRV” indication on the display and “AUTO MARK” lights
   - PIT disc ..... “SEL PIT” indication on the display and “TIME MARK” lights

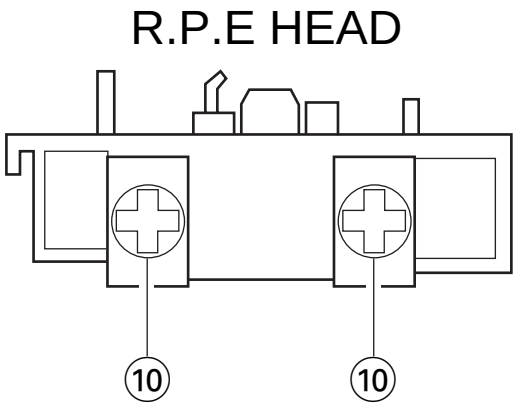
3) Move the pickup to the center track or around the center track of a disc using the B.SKIP and F.SKIP keys.
4) Press the PLAY key.
   When the focus servo is operating normally, the message “FOCUS ON!” is displayed after “FOCUS SCH”.
5) After the checking is complete, press the STOP key to display “ALL SVoFF”.

9-4. Checking the Conditions That All Servos Are ON

1) When the ENTER key is pressed while the focus servo is locked to ON, the tracking servo is turned on and all servos work. When all servos are normal, the message “ALL SV ON” is displayed.
2) After the check is complete, press the STOP key to display “ALL SVoFF’.


MAIN C.B
8
3
6
7
L771
L772
TC942
L941
IC751
TP4
L942
L981
4
TP2
TP3
IC701
TP1
TP9
TP (GND)
TP8
IC601


FRONT C.B
14
CN701
9
TP10
SFR701
TP11
L331


R.P.E HEAD
10
10

< TUNER SECTION >

1. Clock Frequency Check
   Settings: • Test point: TP2
   Method: Set to MW 1602kHz and check that the test point becomes 2052kHz±45Hz.

2. MW VT Check
   Settings: • Test point: TP1 (VT)
   Method: Set to MW 1602kHz and check that the test point is less than 8.0V.
   Then set to MW 531kHz and check that the test point is more than 0.6V.

3. MW IF Adjustment
   Settings: • Test point: TP8, TP9
   L772 ..... 450kHz

4. MW Tracking Adjustment
   Settings: • Test point: TP8, TP9
   • Adjustment location: L981
   Method: Set to MW 999kHz and adjust L981 so that the test point becomes maximum.

5. FM VT Check
   Settings: • Test point: TP1 (VT)
   Method: Set to FM 87.5MHz, 108.0MHz and check that the test point is more than 0.5V (87.5MHz) and less than 8.0V (108.0MHz).

6. LW VT Adjustment
   Settings: • Test point: TP2 (VT)
   • Adjustment location: L942
   Method: Set to LW 144kHz and adjust L942 so that the test point becomes 1.3V±0.05V.
   Then set to LW 290kHz and check that the test point is less than 8.0V.

7. LW Tracking Adjustment
   Settings: • Test point: TP8, TP9
   • Adjustment location:
   L941 ..... 144kHz
   TC942 ..... 290kHz
   Method: Set up TC942 to center before adjustment.
   The level at 144kHz is adjusted to maximum by L941. Then the level at 290kHz is adjusted to maximum by TC942.

8. DC Balance/Mono Distortion Adjustment
   Settings: • Test point: TP3, TP4
   • Adjustment location: L771
   • Input level: 60dB
   Method: Set to FM 98.0MHz and adjust L771 so that the voltage between TP3 and TP4 becomes 0V±0.04V.
   Next, check that the distortion is less than 1.3%.

< DECK SECTION >

9. Tape Speed Adjustment
   Settings: • Test tape: TTA-100
   • Test point: TP8, TP9
   • Adjustment location: SFR701
   Method: Playback the test tape by DECK2 and adjust SFR701 so that the frequency counter reads 3000Hz±5Hz. Check that the counter reading in the REV mode is within the range of ±45Hz of that in the FWD mode.

10. Azimuth Adjustment
    Settings: • Test tape: TTA-330
    • Test point: TP8, TP9
    • Adjustment location: Head azimuth adjustment screw
    Method: Playback the 10kHz signal of the test tape and adjust the adjustment screw so that the output becomes the -0.5dB point below the maximum reading. The adjustment must ends with the clockwise rotation of the adjustment screw. Perform this adjustment in both FWD and REV directions. Fix the adjustment screw with adhesive agent upon completion of adjustment.

11. PB Sensitivity Check
    Settings: • Test tape: TTA-200
    • Test point: TP8, TP9
    Method: Play back the test tape and check the output level of the TP301 becomes 110mV±3mV.

12. REC/PB Frequency Response Check
    Settings: • Test tape: TTA-602
    • Test point: TP8, TP9
    • Input signal: 1kHz/10kHz (LINE IN)
    Method: Establish the record mode. Input the 1kHz and the 10kHz signals from LINE IN with the input level so that TP8, TP9 has the signal level of 8-10mV. Record the 1kHz and the 10kHz signals, then play them back. Adjust the output difference between the 1kHz and the 10kHz signals becomes 0dB±0.5dB.

13. REC/PB Sensitivity Check
    Settings: • Test tape: TTA-602
    • Test point: TP8, TP9
    • Input signal: 1kHz /10kHz (LINE IN)
    Method: Establish the record mode. Input the 1kHz signal from LINE IN with the input level so that TP301 has the signal level of 80-100mV. Record the 1kHz signal, then play it back. Check the output level becomes -2.0dB±3.5dB.

< FRONT SECTION >

14. Micom Clock Adjustment
    Settings: • Test point: TP10 (CLK), TP11 (GND)
    • Adjustment location: L331
    Method: Set the frequency counter between TP10 and TP11. Adjust L331 so that test points become 166.89Hz±0.16Hz.

PRACTICAL SERVICE FIGURE

< TUNER SECTION >

< FM SECTION >

IHF Sensitiviy:	Less than 13dB
(THD 3%)	(at 108.0/98.0MHz)
	Less than 14dB
	(at 98.0MHz)
Distortion:	Less than 1.2% (98.0MHz)
Stereo separation:	More than 12dB (98.0MHz)
Intermediate frequency:	10.7MHz

< MW SECTION >

Sensitivity:	Less than 60dB (at 600kHz)
(S/N 20dB)	Less than 58dB
	(at 1000/1400kHz)
Distortion:	Less than 1.5%
	(at 1000kHz)

< LW SECTION >

Sensitivity:	Less than 70dB (at 144kHz)
	Less than 68dB (at 198kHz)
	Less than 66dB (at 290kHz)

< DECK SECTION >

Tape speed:	3000Hz±5.0%
Wow & flutter:	Less than 0.25%
(W.R.M.S)	
Distortion (REC/PB):	Less than 2%
	(NORM, CrO_2)
Noise level (PB):	Less than 1.0mV
	(DOLBY NR OFF, NORM)
Erasing ratio:	More than 60dB
Test tape:	NORMAL TTA-100
	TTA-602
	CrO_2 TTA-615

< MD BLOCK >

All adjustments and checks of the MD block are performed using the test mode.

1. Temperature Compensation Adjustment
   * In principle, do not perform the temperature compensation adjustment during the normal maintenance or repair work. If the adjustment value is found out that it is far out of the specification values shown in this service manual, perform the temperature compensation adjustment under the environment where the ambient temperature can be precisely measured.

   • Test Point: Indication on the display
   • Jig: Thermometer
   • Adjustment procedure

   1) Start up the MD test mode then press the STOP key to display the message “ALL SVoFF”.
   2) Press the DISPLAY key to switch the display to “TEMP=$**”.
   3) Press the PAUSE key to switch the display to “T+**C:+00”.
   4) Place the thermometer near the MD mechanism to measure the room temperature.
   5) Press the B.SKIP and F.SKIP keys until the indication value on the thermometer and the indication value ** on the display are the same, and press the ENTER key to set the value.
   6) After the adjustment is complete, press the STOP key to display the message “ALL SVoFF”.

2. Laser Power Adjustment
   • Test Point: Pickup laser output
   • Jig: Laser power meter (The meter capable of measuring up to 10 mW)

   2-1. Playback Laser Power Adjustment
   • Adjustment procedure
   1) Press the EDIT key while the message “ALL SVoFF” appears, to change the display to “LA READ”.
   2) Press the PAUSE key once to display the “LASER = $**”.
   3) Measure the laser output of the pickup unit using a laser power meter. Adjust the laser output value for about 0.68 mW by pressing the B.SKIP and F.SKIP keys, and press the ENTER key.
   4) After the adjustment is complete, press the STOP key to display “ALL SVoFF”.

   2-2. Recording Laser Power Adjustment
   1) Press the EDIT key three times while the message “ALL SVoFF” appears, to change the display to “LA WRITE”.
   2) Press the PAUSE key once to display “LASER=$**”.
   3) Measure the laser output of the pickup unit using a laser power meter. Adjust the laser output value for 6.8±0.03 mW by pressing the B.SKIP and F.SKIP keys. Press the ENTER key.
   4) After the adjustment is complete, press the STOP key to display “ALL SVoFF”.

   Note: If the laser output exceeds 7.0 mW, the pickup may be damaged.

3. Auto Sequence Adjustment (EFB/IVR/Focus AGC/Tracking AGC Adjustments)
   • Test Point: Indication on the display
   • Test Disc: MDW-60, TGYS-1 or equivalent

   3-1. Adjusting the MO Disc
   • Adjustment procedure
   1) Load the MDW-60.
   2) Press the MODE (MD) key to display “SEL GRV”.
   3) When the MD function key is pressed, “AUTO ADJ” is displayed and the adjustment is started. When the adjustment is complete, the message “DONE” is displayed. (If “FAILD” is displayed, it shows that the adjustment has failed.)
   4) After the adjustment is complete, press the STOP key to display “ALL SVoFF”.
   5) Perform the check of section 3-2.

3-2. Checking the IVR, EFB, Focus/Tracking/Sled Gains of the MO Disc

• Adjustment procedure

1) Move the pickup to the center track or around the center track of a disc using the B.SKIP and F.SKIP keys.
2) Press the PLAY key to display “FOCUS ON!”.
3) Press the ENTER key to switch the mode to “ALL SV ON”.
4) Press the STOP key and press the DISPLAY key twice. Confirm that the indication value on the display “I$**:E$!!” is within the range as follows. (hexadecimal)
   I$ “**” ..... 03 to 09
   E$ “◇◇” ..... 09 to 15
5) Press the DISPLAY key again.
   Confirm that the indication value on the display “f**t##s!!” is within the range as follows. (hexadecimal)
   f “**” ..... 20 to 40
   t “##” ..... 15 to 40
   s “△△” ..... 15 to 40
6) After the adjustment is complete, press the STOP key to display “ALL SVoFF”.

3-3. Adjusting the PIT Disc

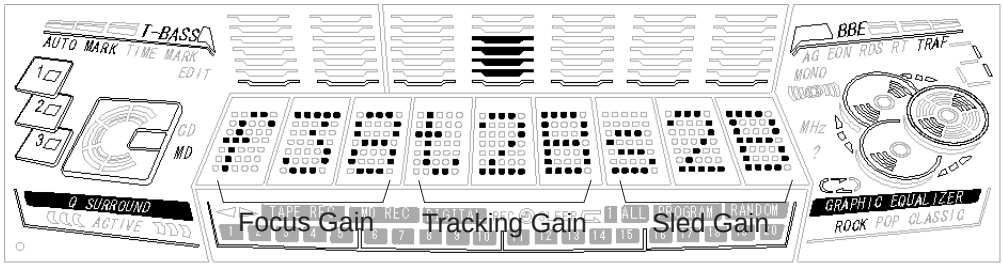
• Adjustment procedure

1) Load the TGYS-1.
2) Press the MODE key to display “SEL PIT”.
3) Press the MD function key to display “AUTO ADJ”. After the adjustment is complete, “DONE” is displayed. (If “FAILD” is displayed, it shows that the adjustment has failed.)
4) After the adjustment is complete, press the STOP key to display “ALL SVoFF”.
5) Perform the check of section 3-4.

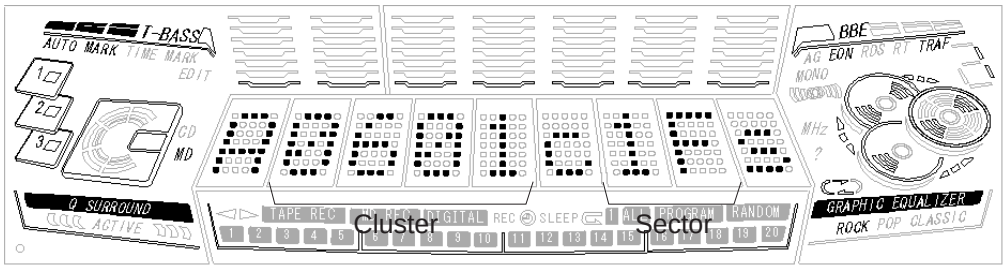
3-4. Checking the IVR, EFB, and the Focus/Tracking/Sled Gains of PIT Disc

• Adjustment procedure

1) Move the pickup to the center track or around the center track of a disc using the B.SKIP and F.SKIP keys.
2) Press the PLAY key to display “FOCUS ON!”.
3) Press the ENTER key to switch the mode to “ALL SV ON”.
4) Press the STOP key and press the DISPLAY key twice. Confirm that the indication value on the display “I$**:E$!!” is within the range as follows. (hexadecimal)
   I$ “**” ..... 13 to 17
   E$ “◇◇” ..... 09 to 12
5) Press the DISPLAY key again. Confirm that the indication value on the display “f**t##s△△” is within the range as follows. (hexadecimal)
   f “**” ..... 2A to 45
   t “##” ..... 20 to 40
   s “△△” ..... 20 to 40
6) After the adjustment is complete, press the STOP key to display “ALL SVoFF”.



4. Error Rate Check (PIT Disc)
   • Test Point: Check the indication on the display
   • Test Disc: TGYS-1 or equivalent
   • Adjustment procedure
   1) Load the TGYS-1.
   2) Move the pickup to the center track or around the center track of a disc using the B.SKIP and F.SKIP keys.
   3) Press the MODE key to display “SEL PIT”.
   4) Press the PLAY key to display “FOCUS ON!”.
   5) Press the ENTER key to display “ALL SV ON”. Press the DISPLAY key once to confirm that the address indication advances constantly.
   6) Press the DISPALY key again to display the playback error rate. Confirm that the data [****:***] of the underlined portion is “0030” or less.
   7) After the check is complete, press the STOP key to display “ALL SVoFF”.



5. Recording/Playback Error Rate Check (MO Disc)
   • Test Point: Indication on the display
   • Test Disc: MDW-60
   • Adjustment procedure
   1) Load the MDW-60.
   2) Move the pickup to the center track or around the center track of a disc using the B.SKIP and F.SKIP keys.
   3) Press the CD function key. The recording starts automatically from the 600 cluster.
   4) After the recording is performed for about 15 seconds, press the STOP key.
   5) When the AUX/D-IN function key is pressed, the pickup moves to the 600 cluster or its around and the mode is switched to “ALL SV ON” (address is shown on the display.) Therefore, press the DISPLAY key after the address indication is changed to the 600 cluster or higher. Confirm that the data [****:***] of the underlined portion is “0030” or less.
   6) After the adjustment is complete, press the STOP key to return to “ALL SVoFF”.

IC DESCRIPTION

IC, LC876564V

Pin No.	Pin Name	I/O	Description
1	O-$\overline{\text{CD_OPEN}}$	O	CD tray open output.
2	O-$\overline{\text{CD_CLOSE}}$	O	CD tray close output.
3	O-PB1	O	Tape deck playing switching output TAPE1/$\overline{\text{TAPE2}}$.
4	O-CD_DATA/ I-RDS_DATA	O	CD data output/RDS data input.
5	O-TU_ON	O	TUNER power supply ON/$\overline{\text{OFF}}$ output.
6	O-DSC_CE/ PLL_DATA	O	Function IC serial output/PLL data output.
7	O-RMT	O	Tape deck REC mute ON/$\overline{\text{OFF}}$ output.
8	O-BIAS	O	Tape deck bias ON/$\overline{\text{OFF}}$ output.
9	O-MOTOR	O	Tape deck motor ON/$\overline{\text{OFF}}$ output.
10	O-Q_SURROUND	O	Q surround ON/$\overline{\text{OFF}}$ output.
11	$\overline{\text{RESET}}$	—	Microcomputer reset.
12	I-RE_VOL	I	VOLUME AD input.
13	I-RE_MULTI	I	Multi JOG AD input.
14	VSS1	—	GND.
15	CF1	I	Connected to oscillator.
16	CF2	O	
17	VDD1	—	Microprocessor power supply.
18	I-$\overline{\text{HOLD}}$	I	System power supply monitoring input ON/$\overline{\text{OFF}}$ input.
19-21	I-KEY1-I-KEY3	I	AD input.
22	I-DISH	I	CD turn table position detection AD input.
23	I-CDSW	I	CD mechanism switch input.
24	I-TU_SIG	I	Tuner signal input.
25	I-TP_SW	I	Tape deck mechanism switch AD input.
26	O-$\overline{\text{CLK_SFT}}$	O	System microcomputer clock shift $\overline{\text{ON}}$/OFF output.
27	I-WRQ/RDS_CLK	I	CD_write request input/RDS clock input.
28	O-POWER	O	System power supply ON/$\overline{\text{OFF}}$ output.
29	I-$\overline{\text{RMC}}$	I	Remote control.
30-40	G11-G1	O	FL glid output.
41-45	P36-P32	O	FL segment output.
46	VDD3	—	Power supply.
47-50	P31-P28	O	FL segment output.
51	VP	—	Connected to minus power supply -VFL for FL.
52-57	P27-P22	O	FL segment output.
58	P21/RDS	I/O	FL segment 21 output/RDS diode input.
59	P20/FM1	I/O	FL segment 20 output/FM1 diode input.
60	P19/SW	I/O	FL segment 19 output/SW diode input.
61	P18/LW	I/O	FL segment 18 output/LW diode input.
62	P17/AMST	I/O	FL segment 17 output/AM stereo diode input.
63	P16/AM10K	I/O	FL segment 16 output/AM10K diode input.

Pin No.	Pin Name	I/O	Description
64	P15/TM_BASE	I/O	FL segment 15 output/TM_BASE input.
65-71	P14-P8	O	FL segment output.
72	VDD4	—	Power supply.
73-79	P7-P1	O	FL segment output.
80	—	O	Not used.
81	O-MUTE	O	
82	O-KSCAN	O	FL key scan output.
83	I-DRF/$\overline{\text{STEREO}}$	I	DRF input/stereo detection input.
84	I-$\overline{\text{IFC}}$/SUBQ	I	IF count input/CD-SUBQ input.
85	O-DISH_FWD	O	CD tray normal rotation output.
86	O-DISH_REV	O	CD tray reverse rotation output.
87	O-PLLCE	O	TURNER chip enable output.
88	O-CD_CE	O	CD chip enable output.
89	VSS2	—	GND.
90	VDD2	—	Power supply.
91	O-CD_CLK/ PLL_CLK	O	CD clock output/PLL clock output.
92	O-$\overline{\text{MD_LED}}$	O	MD flash window $\overline{\text{ON}}$/OFF output.
93	O-CD_ON	O	CD power supply ON/$\overline{\text{OFF}}$ output
94	O-$\overline{\text{SRST}}$	O	MD microcomputer reset output.
95	O-SOUT	O	MD control serial data output.
96	I-SIN	I	MD control serial data input.
97	I-$\overline{\text{ACLK}}$	I	MD control clock input.
98	O-$\overline{\text{ARDY}}$	O	MD control ready output.
99	O-$\overline{\text{SREQ}}$	O	System computer →MD microcomputer request output.
100	I-$\overline{\text{MREQ}}$	I	MD microcomputer →system computer request input.

IC, CXD2652AR

Pin No.	Pin Name	I/O	Description
1	MNT0	O	Monitor output terminal.
2	MNT1	O	Monitor output terminal.
3	MNT2	O	Monitor output terminal.
4	MNT3	O	Monitor output terminal.
5	SWDT	I	Microprocessor serial interface data input.
6	SCLK	I	Microprocessor serial interface shift clock input.
7	XLAT	I	Microprocessor serial interface latch input. Latched at falling down edge.
8	SRDT	O	Microprocessor serial interface data output.
9	SENS	O	The terminal which outputs internal status in accordance with the address of the microprocessor serial interface.
10	XRST	I	Reset input. L: reset.
11	SQSY	O	Disc sub code Q sync/ADIP sync output.
12	DQSY	O	Subcode Q sync output of U-bit CD or MD format when the DIGITAL IN source is CD or MD.
13	RECP	I	Laser power selection input. H: Recording power, L: Playback power.
14	XINT	O	Interrupt request output terminal. L is output when interrupt status is generated.
15	TX	I	Record data output enable signal input terminal. H: enable.
16	OSCI	I	Crystal oscillator circuit input terminal.
17	OSCO	O	Crystal oscillator circuit output terminal. (Inverted output of OSCI).
18	XTSL	I	OSCI terminal input frequency selection. H: 512 Fs (22.5792 MHz), L: 1024 Fs (45.1584 MHz).
19	NC	—	Not connected.
20	DVSS	—	Digital GND.
21	DIN	I	Digital audio interface signal input.
22	DOUT	O	Digital audio interface signal output.
23	ADDT	I	Analog recording signal input terminal. (External A/D converter output is connected to this terminal).
24	DADT	O	RECORD monitor output/decode audio data output.
25	LRCK	O	LRCK (44.1 kHz) output terminal to external audio block.
26	XBCK	O	Bit clock output (2.8224 kHz) output terminal to external audio block.
27	FS256	O	256 Fs output. (11.2896 MHz).
28	DVDD	—	Digital power supply.
29	A03	O	Address output to external DRAM.
30	A02	O	Address output to external DRAM.
31	A01	O	Address output to external DRAM.
32	A00	O	Address output to external DRAM.
33	A10	O	Address output to external DRAM. (Not used).
34	A04	O	Address output to external DRAM.
35	A05	O	Address output to external DRAM.
36	A06	O	Address output to external DRAM.
37	A07	O	Address output to external DRAM.

Pin No.	Pin Name	I/O	Description
38	A08	O	Address output to external DRAM.
39	A11	O	Address output to external DRAM. (Not used).
40	DVSS	—	Digital GND.
41	XOE	O	External DRAM output enable.
42	XCAS	O	$\overline{\text{CAS}}$ output to external DRAM.
43	A09	O	Address output to external DRAM.
44	XRAS	O	$\overline{\text{RAS}}$ output to external DRAM.
45	XWE	O	Write enable for external DRAM.
46	D1	I/O	Data bus for external DRAM.
47	D0	I/O	Data bus for external DRAM.
48	D2	I/O	Data bus for external DRAM.
49	D3	I/O	Data bus for external DRAM.
50	MVCI	I	External VCO (784 fs) clock input.
51	ASYO	O	Playback EFM full swing output. (L: VSS, H: VDD).
52	ASYI	I	Playback EFM comparator slice voltage input.
53	AVDD	—	Analog GND.
54	BIAS	I	Playback EFM comparator bias current input.
55	RFI	I	Playback EFM RF signal input.
56	AVss	—	Analog power supply.
57	PDO	O	Phase comparison output to EFM decoder analog PLL.
58	PCO	O	Phase comparison output to the master PLL of playback digital PLL and to the recording EFM PLL.
59	FILI	I	Filter input to the master PLL of playback digital PLL and to the recording EFM PLL.
60	FILO	O	Filter output to the master PLL of playback digital PLL and to the recording EFM PLL.
61	CLTV	I	Internal VCO control voltage of the master PLL of playback digital PLL and of the recording EFM PLL.
62	PEAK	I	Optical light volume’s peak hold signal input.
63	BOTM	I	Optical light volume’s bottom hold signal input.
64	ABCD	I	Optical light volume signal input.
65	FE	I	Focus error signal input.
66	AUX1	I	Auxiliary input 1.
67	VC	I	Center terminal voltage input.
68	ADIO	O	Monitor output of A/D converter input signal.
69	AVDD	—	Analog power supply.
70	ADRT	I	Voltage input of the upper limit of the A/D converter operation range.
71	ADRB	I	Voltage input of the lower limit of the A/D converter operation range.
72	AVSS	—	Analog GND.
73	SE	I	Sled error signal input.
74	TE	I	Tracking error signal input.
75	AUX2	I	Auxiliary input 2.

Pin No.	Pin Name	I/O	Description
76	DCHG	I	Connected to the low impedance power supply.
77	APC	I	Error signal input to the laser digital APC.
78	ADFG	I	ADIP2 binary-converted FM signal (22.05±1 kHz) input.
79	F0CNT	O	Current source setting output terminal to CXA2523.
80	XLRF	O	Latch output for CXA2523 control. Latched at rise-up.
81	CKRF	O	Shift clock output for CXA2523 control.
82	DTRF	O	Data output for CXA2523 control.
83	APCREF	O	Reference PWM output to laser APC.
84	LDDR	O	PWM output to laser digital APC. (Not used).
85	TRDR	O	Tracking servo drive PWM output. (-).
86	TFDR	O	Tracking servo drive PWM output. (+).
87	DVDD	—	Digital power supply.
88	FFDR	O	Focus servo drive PWM output. (+).
89	FRDR	O	Focus servo drive PWM output. (-).
90	FS4	O	4 fs output. (176.4 kHz).
91	SRDR	O	Sled servo drive PWM output. (-).
92	SFDR	O	Sled servo drive PWM output. (+).
93	SPRD	O	Spindle servo drive PWM output. (PWM (-) or negative polarity).
94	SPFD	O	Spindle servo drive PWM output. (PWM (+) or PWM absolute value).
95	FGIN	I	FG input to spindle CAV servo.
96	TEST1	I	Test pin. Connected to GND.
97	TEST2	I	Test pin. Connected to GND.
98	TEST3	I	Test pin. Connected to GND.
99	DVSS	—	Digital GND.
100	EFMO	O	Low signal during playback. EFM (encode data) output: during recording.

IC, CXP81952

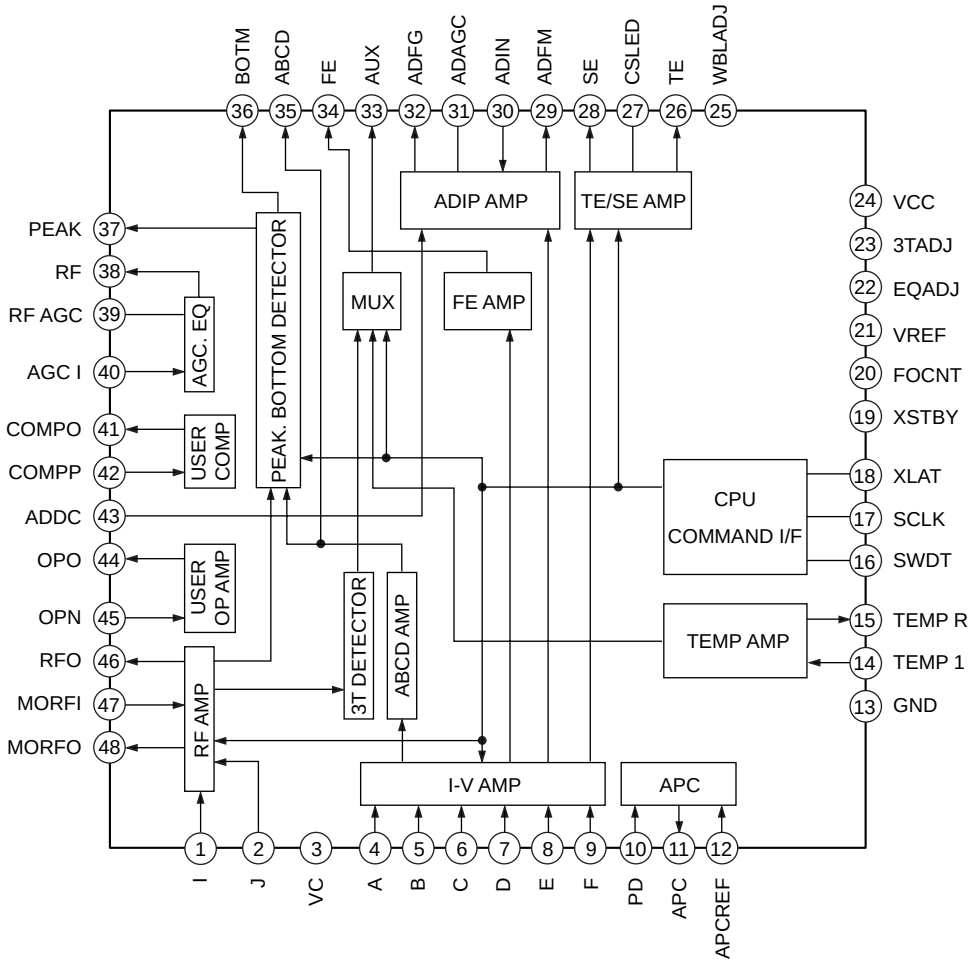
Pin No.	Pin Name	I/O	Description
1	MCAS	—	Not used.
2	MRAS	—	
3	BUP	—	
4	AMUTE	O	Audio mute signal output.
5	ESK	O	Serial clock output for EEPROM interface.
6	EDO	O	Serial data output for EEPROM interface.
7	EDI	I	Serial data input for EEPROM interface.
8	ECS	O	EEPROM interface chip select signal output.
9	—	—	Not used.
10	RFLCT	I	DISC reflectance factor detection switch input.
11	—	—	Not used.
12	LS	I	Optical pickup inner circumference detection switch input.
13	LDSW	I	Loading mechanism, EJECT position detection switch input.
14	PBSW	I	Loading mechanism, PB position detection switch input.
15	RECSW	I	Loading mechanism, RECORD position detection switch input.
16	—	—	Not used.
17	—	—	
18	ACOFF	—	
19	SREQ	I	System control send request signal input for system control interface.
20	EXTDIN	O	External DIGITAL-IN enable signal output.
21	SLOW	O	Loading mechanism speed control signal input.
22	LOAD	O	Loading mechanism operational direction control signal input 1.
23	EJECT	O	Loading mechanism operational direction control signal input 2.
24	MREQ	O	MD microprocessor send request signal output for system control interface.
25	DRIVE	O	EFM driver ON/OFF signal output.
26	—	—	Not used.
27	—	—	
28	—	—	
29	—	—	
30	—	—	
31	—	—	
32	—	—	
33	—	—	
34	—	—	
35	—	—	
36	—	—	
37	MP	—	Connected to VSS.
38	SRST	I	MD microprocessor reset signal input.
39	DGND	—	Connected to VSS.
40	XTALO	O	External system clock oscillation crystal connection terminal 1.
41	XTALI	I	External system clock oscillation crystal connection terminal 2.

Pin No.	Pin Name	I/O	Description
42	ARDY	I	Ready signal input for system control interface.
43	SIN	I	Serial data input for system control interface.
44	SOUT	O	Serial data output for system control interface.
45	ACLK	O	Serial clock output for system control interface.
46	XLAT	O	CXD2652 interface latch signal output.
47	XRST	O	CXD2652 reset signal output.
48	XSTBY	O	CXA2523 standby signal output.
49	—	—	Not used.
50	AVSS	—	Connected to VSS.
51	AVREF	—	Connected to VDD.
52	AVDD	—	
53	—	—	Not used. (PLL UP)
54	—	—	
55	—	—	
56	SLF	—	
57	SRF	—	
58	TEMP	—	
59	MAGIC	—	
60	—	—	
61	TEST	—	
62	DISCPRO	I	DISC write-protection switch input.
63	MNT3	I	CXD2652 monitor signal input 3.
64	MNT2	I	CXD2652 monitor signal input 2.
65	MNT1	I	CXD2652 monitor signal input 1.
66	MNT0	I	CXD2652 monitor signal input 0.
67	SENS	I	CXD2652 SENS signal input.
68	FLG	I	The terminal monitoring the flag included in the SRDT of the CXD2652 interface.
69	—	—	Not used.
70	—	—	
71	P-CONT	—	
72	RFSW	—	
73	—	—	
74	—	—	
75	DQSY	I	DIGITAL-IN SUB-Q sync input.
76	XINT	I	CXD2652 status sync input.
77	SRDT	I	CXD2652 interface serial data input.
78	SWDT	O	CXD2652 interface serial data output.
79	SCLK	O	CXD2652 interface serial clock output.
80	SQSY	I	SUB-Q, ADIP sync input.
81	—	—	Not used.
82	—	—	

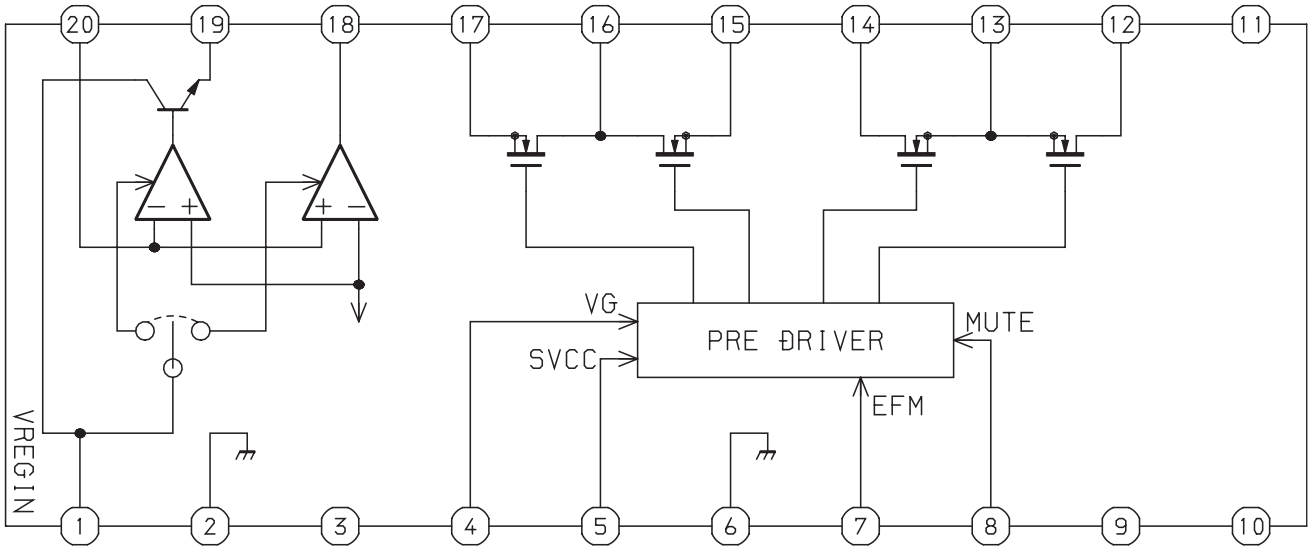
Pin No.	Pin Name	I/O	Description
83	—	—	Not used.
84	TXI	—	Connected to VSS.
85	TXO	—	Open. (Not used)
86	VSS	—	Connected to VSS.
87	VDD	—	Connected to VDD.
88	NC	—	
89	—	—	Not used.
90	DRVMUTE	O	BA5970FP mute signal output.
91	—	—	Not used.
92	—	—	
93	—	—	
94	—	—	
95	RECP	O	Laser power selection signal output.
96	TX	O	Record data output enable signal output.
97	MOD	O	RF modulation circuit ON/OFF signal output.
98	OPMUTE	O	Laser mute signal output.
99	ARST	O	AK4512 reset signal output.
100	DENF	O	De-emphasis ON/OFF signal output.

IC BLOCK DIAGRAM

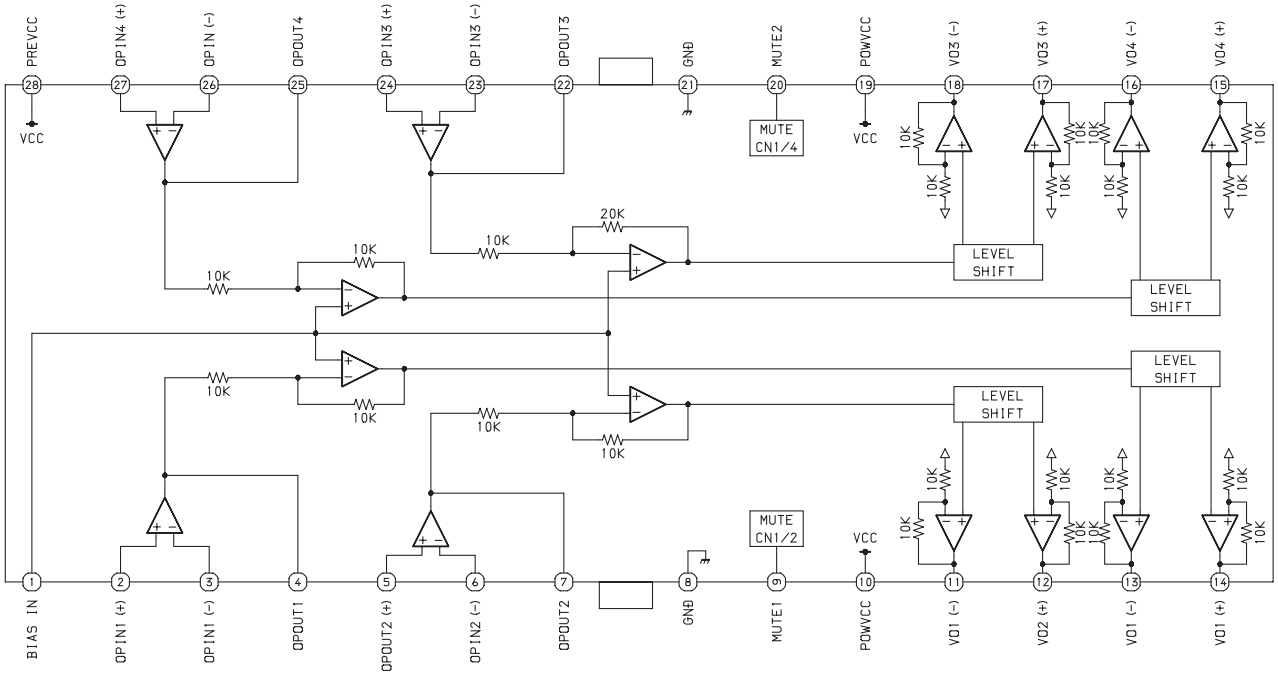
IC, CXA2523AR



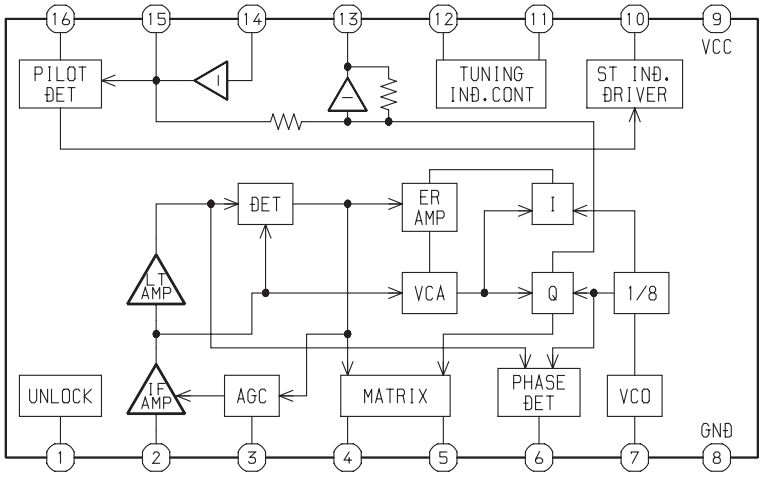
IC, BD7910FV



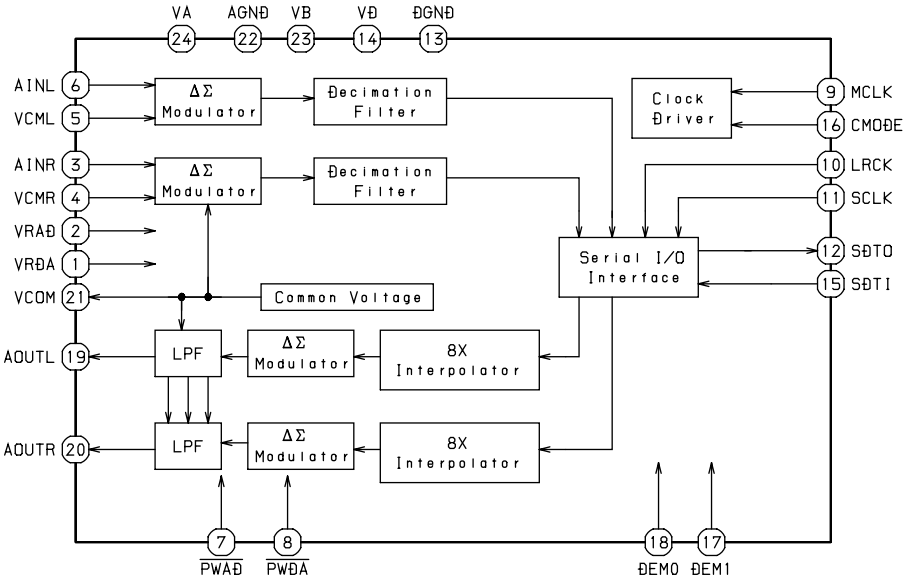
IC, BA5970FP



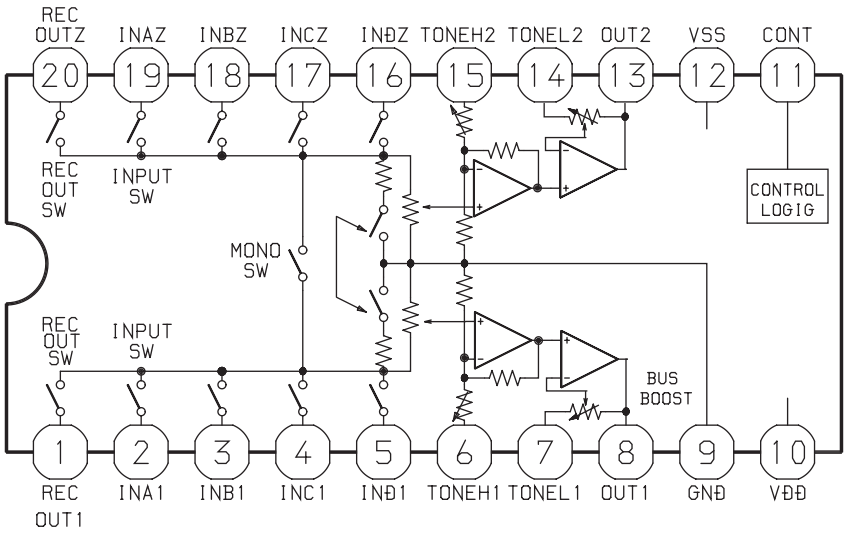
IC, TA2040AP



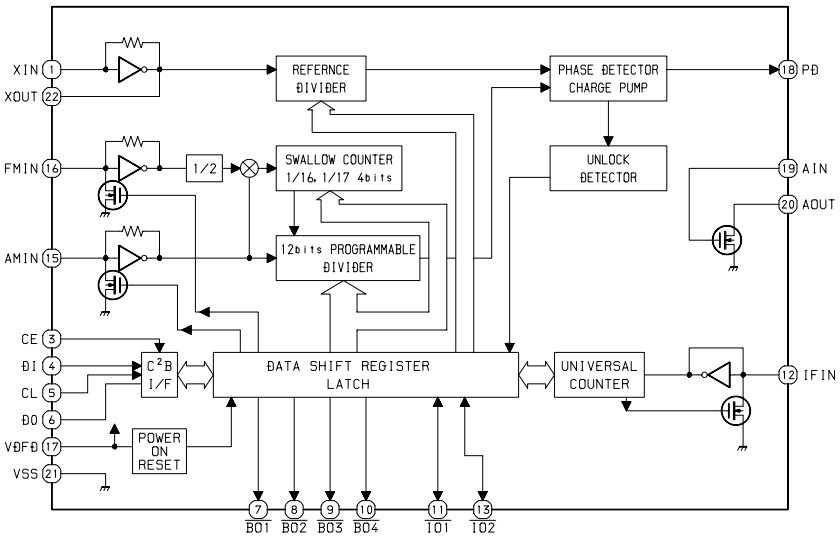
IC, AK4519VF



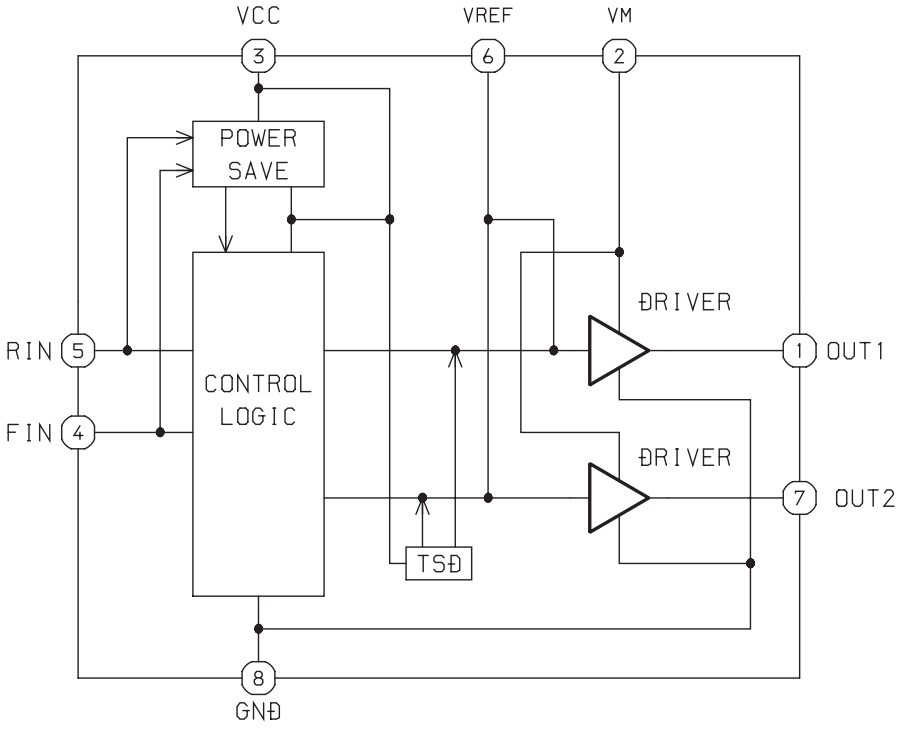
IC, M62439SP



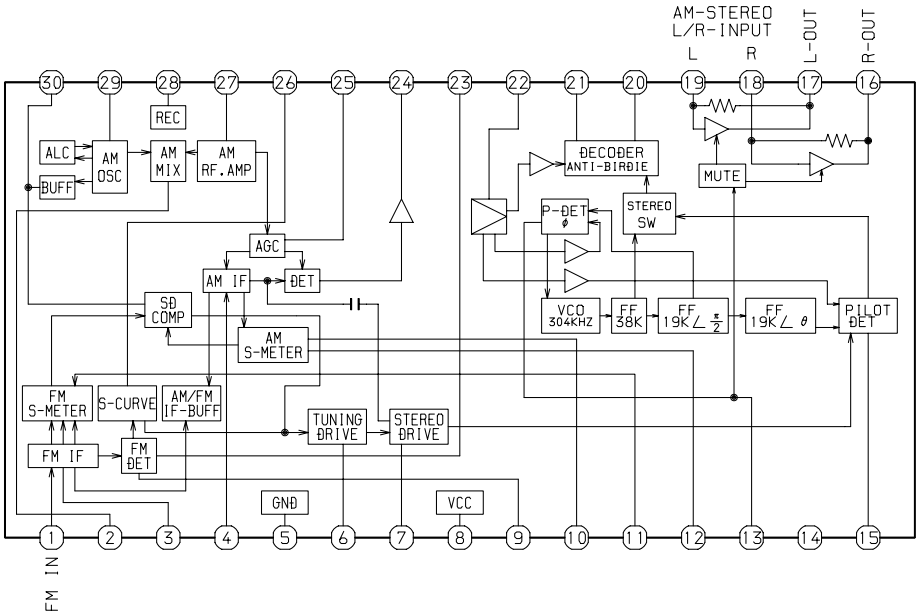
IC, LC72131D



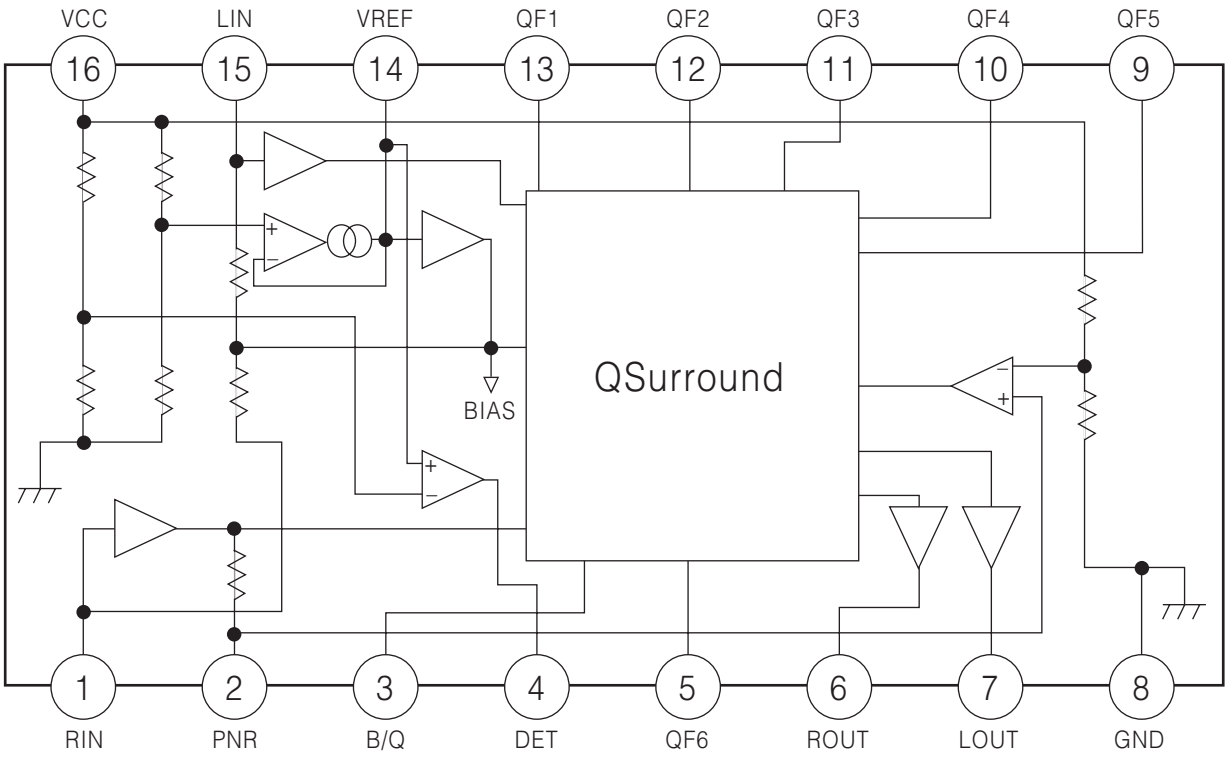
IC, BA6417F



IC, LA1837NL



IC, MM1454XFBE



MECHANICAL PARTS LIST 1/1

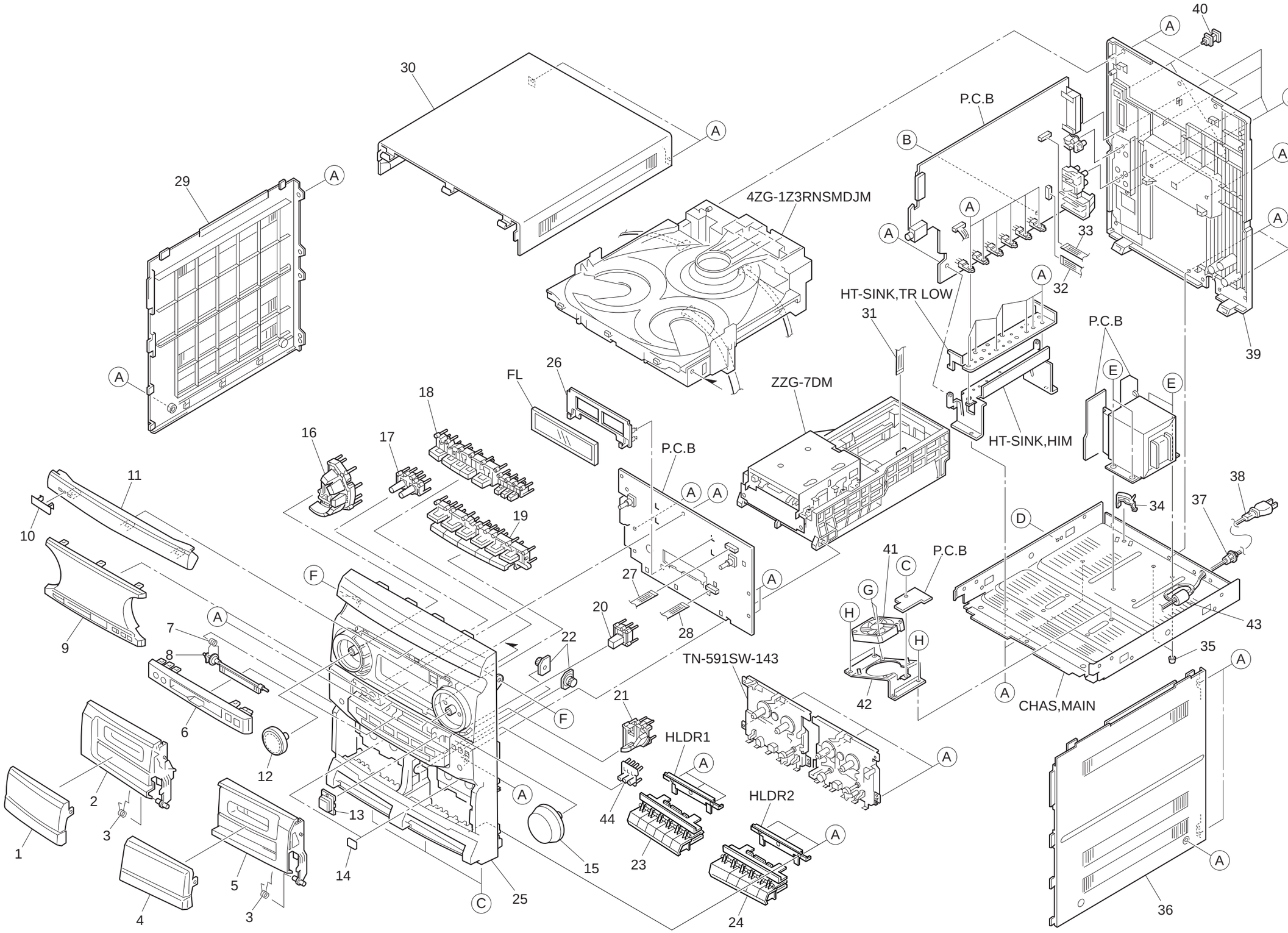
DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	8Z-NB9-016-010		WINDOW,CASS 1 1WAY
2	8Z-NB9-006-010		BOX,CASS 1
3	82-NF7-218-010		SPR-T,CASS
4	8Z-NB9-019-010		WINDOW,CASS 2 1WAY
5	8Z-NB9-007-010		BOX,CASS 2
6	8Z-NB9-009-010		PANEL,MD
7	87-NBG-207-010		SPR-T,FLAP NBG
8	8Z-NB9-010-010		PLATE,FRAP
9	8Z-NB9-013-010		WINDOW,DISPLAY D
10	82-NE6-067-010		BADGE,AIWA 30N
11	8Z-NB9-008-010		PANEL,TRAY
12	8Z-NB9-032-010		KNOB,RTRY JOG
13	8Z-NB9-030-010		REFLECTOR,MD
14	81-532-080-010		LABEL, CASS. COMPT
15	8Z-NB9-031-010		KNOB,RTRY VOL
16	8Z-NB9-024-010		KEY,MD ENTER
17	8Z-NB9-025-010		KEY,MD REC
18	8Z-NB9-023-010		KEY,CD
19	8Z-NB9-021-010		KEY,POWER
20	8Z-NB9-026-010		KEY,MD EJECT
21	8Z-NB9-022-010		KEY,T-BASS
22	86-NFZ-231-010		DMPR,70
23	8Z-NB9-028-010		KEY,CASS 1
24	8Z-NB9-029-010		KEY,CASS 2 1WAY
25	8Z-NB9-003-010		CABI,FR EZ
26	88-SU1-201-110		GUIDE,FL
27	88-913-271-110		FF-CABLE, 13P 1.25
28	88-907-251-110		FF-CABLE, 7P 1.25
29	8Z-NFA-018-110		PANEL,LEFT V-2
30	8Z-NFA-005-110		PANEL,TOP
31	88-906-171-110		FF-CABLE,6P 1.25
32	87-NB7-615-010		CONN ASSY,2P SHIELDPH/PH
32	83-NE2-618-110		F-CABEL,5P-2.5
33	88-912-151-110		FF-CABLE, 12P 1.25
34	87-NF4-221-010		HLDR,CABLE
35	8Z-NB8-240-010		COVER, PL
36	8Z-NB9-018-010		PANEL,RIGHT V-2
37	87-085-185-010		BUSHING, AC CORD (E)
⚠ 38	87-050-079-010		AC-CORD ASSY,E
39	8Z-NB9-053-010		CABI,REAR EZSM<EZS>
39	8Z-NB9-054-010		CABI,REAR KSM<KS>
40	84-ZG1-245-210		CAP,OPTICAL
41	87-A90-296-210		MOT ASSY,F614R-12MC-15
42	87-NBG-206-010		HLDR,FAN
43	87-003-317-010		F-BEAD,F0H2515-LG7
44	8Z-NB9-027-010		KEY,RDS
A	87-067-703-010		TAPPING SCREW, BVT2+3-10
B	87-NF4-224-010		S-SCREW,IT3B+3-8 CU
C	87-067-688-010		BVTT+3-6
D	87-723-096-410		QT2+3-10W/O SLOT BL
E	87-078-191-010		S-SCREW,IT+4-10
F	87-721-097-410		QT2+3-12 GLD
G	87-067-584-010		TAPPING SCREW, BVT2+3-6
H	87-B10-184-010		BVTT+3-20 W/O SLOT

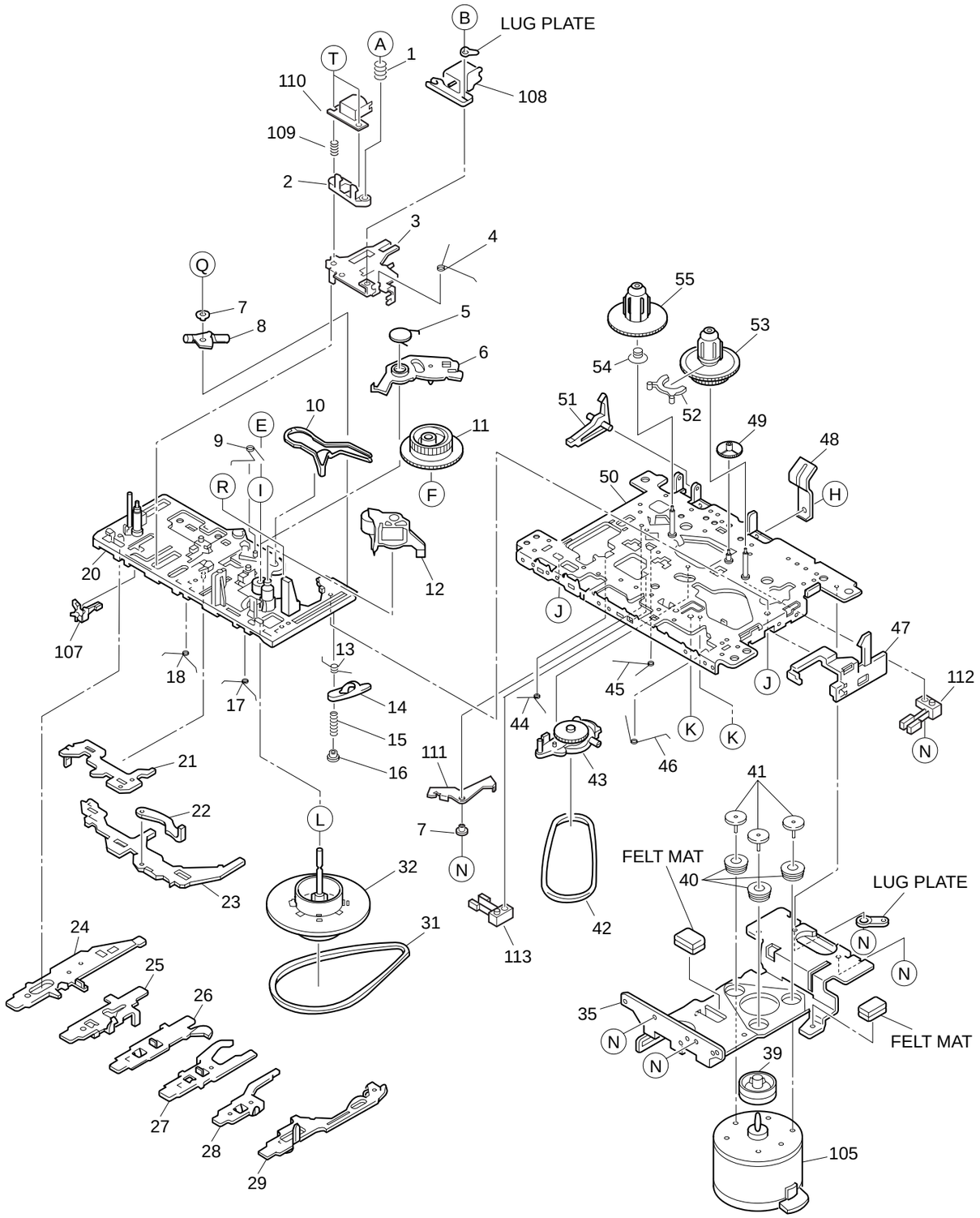
COLOR NAME TABLE

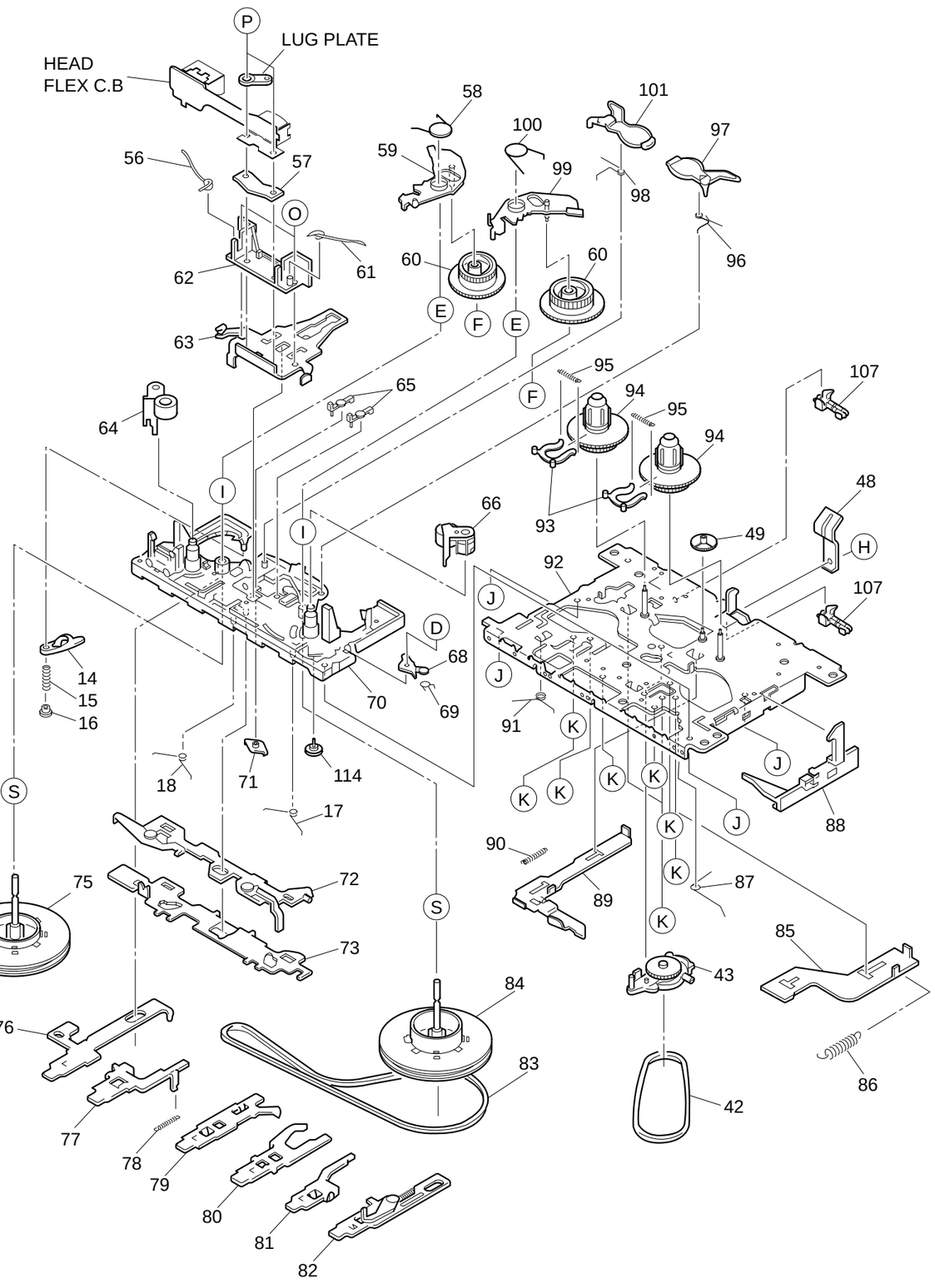
Basic color symbol	Color	Basic color symbol	Color	Basic color symbol	Color
B	Black	C	Cream	D	Orange
G	Green	H	Gray	L	Blue
LT	Transparent Blue	N	Gold	P	Pink
R	Red	S	Silver	ST	Titan Silver
T	Brown	V	Violet	W	White
WT	Transparent White	Y	Yellow	YT	Transparent Yellow
LM	Metallic Blue	LL	Light Blue	GT	Transparent Green
LD	Dark Blue	DT	Transparent Orange		

MECHANICAL EXPLODED VIEW 1/1



TAPE MECHANISM EXPLODED VIEW 1/1



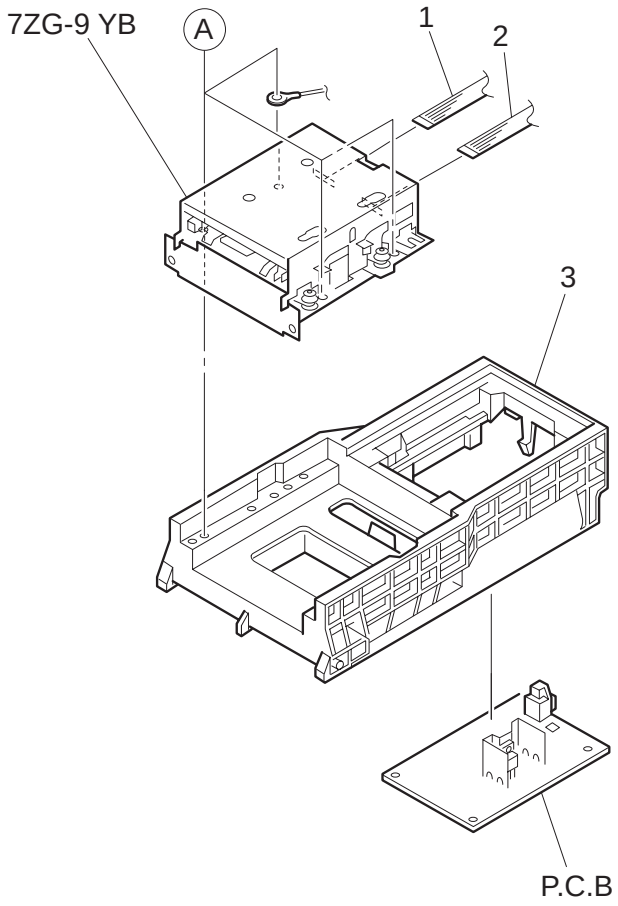


TAPE MECHANISM PARTS LIST 1/1

DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	S1-821-030-070		AZIMUTH SPRING
2	S1-921-030-060		HEAD BASE
3	S1-921-030-140		HEAD PANEL
4	S1-921-030-090		PANEL P SPR
5	S1-921-260-050		GEAR PLATE SPRING
6	S1-921-265-020		GEAR PLATE ASSY
7	S1-921-140-370		P ARM COLLAR
8	S1-921-140-340		P ARM
9	S1-921-141-8A0		M CONTROL SPPRING
10	S1-921-260-4A0		SENSING LEVER
11	S1-921-260-020		CAM GEAR
12	S1-921-043-100		PINCH ROLLER ARM ASSY
13	S1-921-141-3A0		P CONTROL SPRING
14	S1-921-140-820		PAUSE LEVER(F)
15	S1-921-140-120		PAUSE LEVER SPRING
16	S1-921-140-110		PAUSE STOPPER
17	S1-921-141-080		BUTTON LEVER SPRING(B)
18	S1-921-141-070		BUTTON LEVER SPRING(A)
20	S1-921-143-160		BASE ASSY
21	S1-921-140-090		SWITCH ACTUATOR
22	S1-921-140-640		E KICK LEVER
23	S1-921-140-080		PUSH BUTTON ACTUATOR
24	S1-921-140-220		REC BUTTON LEVER
25	S1-921-140-840		PLAY BUTTON LEVER
26	S1-921-140-240		REW BUTTON LEVER
27	S1-921-140-250		FF BUTTON LEVER
28	S1-921-140-660		STOP BUTTON LEVER
29	S1-921-140-610		PAUSE BUTTON LEVER
31	S1-821-121-730		MAIN BELT
32	S1-921-093-260		FLYWHEEL ASSY
35	S1-851-140-070		MOTOR BRACKET
39	S1-959-120-010		MOTOR PULLEY
40	S1-821-120-660		MOTOR RUBBER
41	S1-851-140-180		MOTOR COLLAR SCREW
42	S1-821-070-110		RF,BELT
43	S1-959-073-010		RF CLUTCH ASSY
44	S1-921-140-170		P.S.LEVER SPRING
45	S1-921-140-210		REC BUTTON LEVER SPR
46	S1-921-140-160		E ACTUATOR SPRING
47	S1-921-130-020		EJECT SLIDE LEVER
48	S1-829-100-010		SPR,PACK
49	S1-821-100-700		FF GEAR
50	S1-921-015-010		CHASSIS ASSY
51	S1-821-100-690		REC SAFETY LEVER
52	S1-921-050-060		SENSOR
53	S1-921-053-100		TAKE UP REEL ASSY
54	S1-921-050-220		BACK TENSION SPRING
55	S1-921-050-150		S REEL HUB
56	S1-959-040-040		SPR,P.ROLLER ARM(R)
57	S1-851-040-050		PLATE HEAD SPR
58	S1-959-260-050		GEAR PLATE SPR(R)
59	S1-959-265-020		GEAR PLATE(R)ASSY
60	S1-959-260-030		CAM GEAR
61	S1-959-040-020		SPR,P.ROLLER ARM(F)
62	S1-959-030-030		HEAD BASE
63	S1-959-030-010		HEAD PANEL
64	S1-959-043-040		PINCH ROLLER ARM(R)ASSY
65	S1-959-260-080		M CONTROL ARM
66	S1-959-043-030		PINCH ROLLER ARM(F)ASSY
68	S1-959-140-090		ROTARY ARM
69	S1-959-140-270		ROTARY SPRING
70	S1-959-143-010		BASE ASSY
71	S1-959-140-230		PR STOPPER
72	S1-959-145-010		ACTUATOR ASSY
73	S1-959-140-260		SLIDE PLATE
75	S1-959-093-040		FLYWHEEL(R)ASSY
76	S1-959-140-170		MODE BUTTON LEVER(S)
77	S1-959-140-160		PLAY BUTTON LEVER(S)
78	S1-959-030-020		SPR,PANEL
79	S1-959-140-150		FF BUTTON LEVER(RS)
80	S1-959-140-140		FF BUTTON LEVER(FS)
81	S1-959-140-130		STOP BUTTON LEVER(S)
82	S1-959-143-030		PROG BUTTON LEVER(S)ASY
83	S1-851-140-170		MAIN BELT
84	S1-959-093-030		FLYWHEEL CAPSTAN(F)ASSY
85	S1-959-150-010		MUTING PLATE
86	S1-959-150-020		MUTING PLATE SP
87	S1-959-140-200		E ACTUATOR SPRING
88	S1-959-130-020		EJECT SLIDE LEVER(S)
89	S1-959-010-020		MAIN PLATE
90	S1-959-010-030		SPR,MAIN PLATE
91	S1-959-140-220		PM BUTTON LEVER SPRING
92	S1-959-015-010		CHASSIS ASSY
93	S1-959-050-010		SENSOR
94	S1-921-053-090		TAKE UP REEL ASSY
95	S1-959-050-040		SENSOR SPRING
96	S1-959-260-090		M CONTROL SPR(F)
97	S1-959-260-060		SENSING LEVER(F)
98	S1-959-260-100		M CONTROL SPR(R)
99	S1-959-265-010		GEAR PLATE(F)ASSY
100	S1-959-260-040		GEAR PLATE SPR(F)
101	S1-959-260-070		SENSING LEVER(R)
105	S6-002-030-290		MOTOR EG-530YD-2BH
107	S6-401-011-490		LEAF SW MSW-1541T
108	S6-201-011-110		R.P HEAD RP-7442ES0951
109	S1-821-030-080		EH,SPRING
110	S6-202-140-190		E HEAD LE15B-C1
111	S1-921-020-010		REC ARM
112	S6-401-010-380		LEAF AWITCH MSW-1275
113	S6-401-011-610		LEAF SW MSW-17820-MVE1
114	S1-959-140-080		ROTARY ARM SHAFT
A	S9-F08-200-710		SCREW,M2-7
B	S9-B01-200-310		SCREW,+2-3
C	S9-P01-200-610		SCREW,M2-6
D	S9-E01-001-520		E RING S1.5
E	S9-W06-500-200		HLW CUT 1.45-3.8-0.5
F	S9-W06-300-300		HLW CUT 1.2-3.8-0.3
H	S9-P04-200-310		SCREW,TAP M2-3
I	S9-W01-130-200		P.W 2.1-4-0.13
J	S9-B10-200-510		SCREW,TAP 2-5
K	S9-C07-204-510		SCREW,TAP 2-4.5
L	S9-W01-400-100		PW 2-3.5-0.4
N	S9-P04-200-410		C TAPPING SCREW M2-4
O	S9-C04-202-530		S-SCREW,TAP 2-2.5
P	S9-P14-200-630		S-SCREW,M2-6 BLK
Q	S9-P08-203-010		SCREW,TAP M2-3
R	S9-P05-200-810		SCREW,TAPPING 2-8
S	S9-W05-300-100		HLW 2.1-3.5-0.3
T	S9-P17-205-710		SCREW,M2-7.5

MD MECHANISM EXPLODED VIEW 1/4

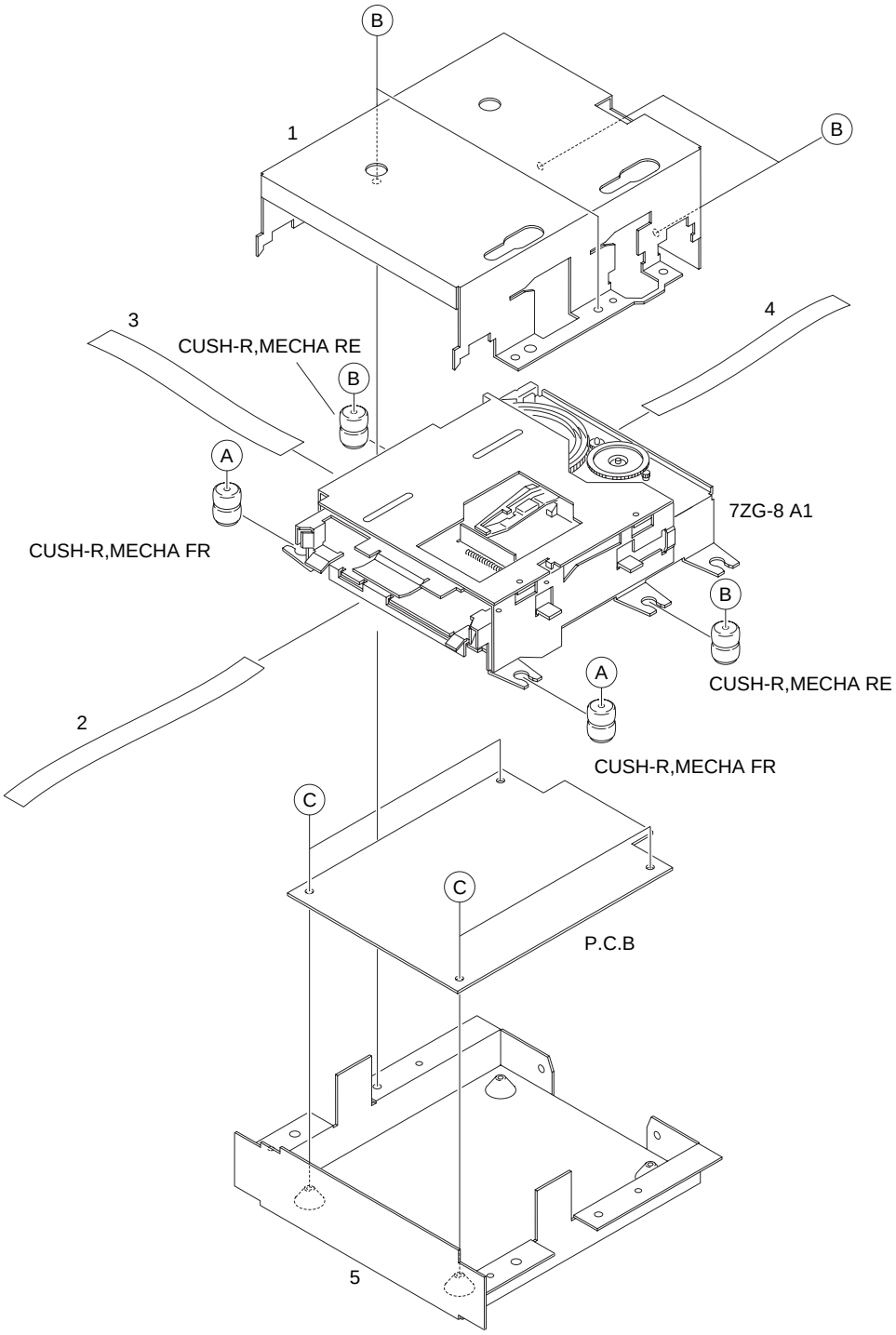


MD MECHANISM PARTS LIST 1/4

DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	87-ZGA-611-010		FF-CABLE, 8P 1.0 100MM
2	87-ZGA-612-010		FF-CABLE,14P 1.0 100MM
3	8Z-NB9-201-010		HLDR,MD
A	87-067-703-010		BVT 2+3-10 W/O SLOT

MD MECHANISM EXPLODED VIEW 2/4

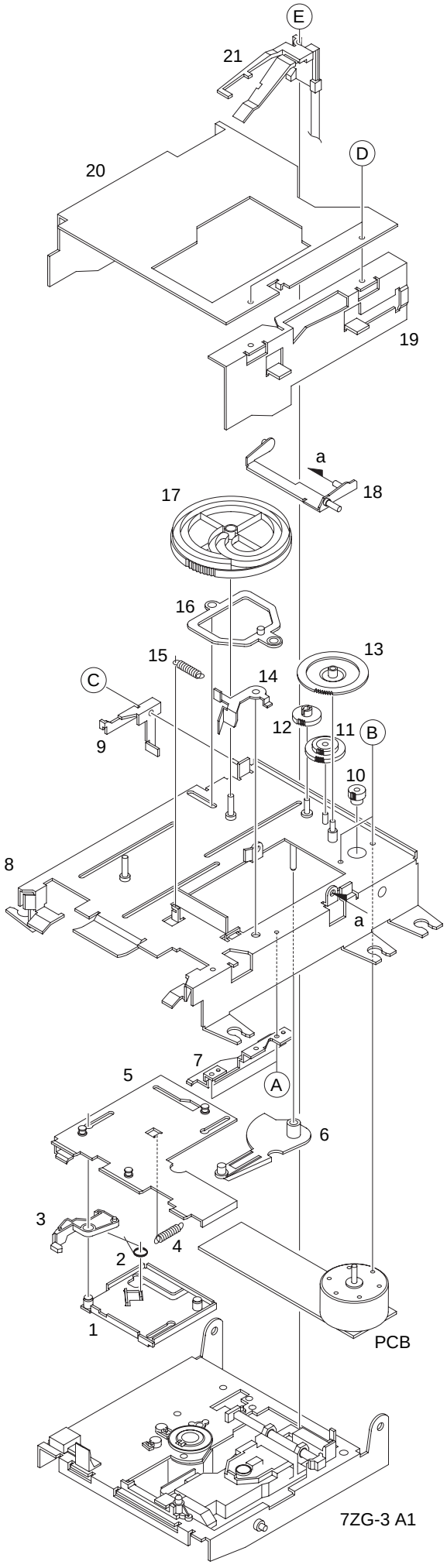


MD MECHANISM PARTS LIST 2/4

DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	87-ZG9-202-110		HLDR,SHLD TOP
2	87-ZG9-603-010		FF-CABLE, 8P 1.0 120MM
3	87-ZG9-602-010		FF-CABLE, 21P 0.5 90MM
4	87-ZG9-604-010		FF-CABLE, 5P 1.25 100MM
5	87-ZG9-201-110		HLDR,SHLD BOT
A	87-ZG9-209-010		S-SCREW,MD TF
B	87-ZG9-208-010		S-SCREW,MD T
C	87-067-020-010		SCREW, VTT+3-4

MD MECHANISM EXPLODED VIEW 3/4

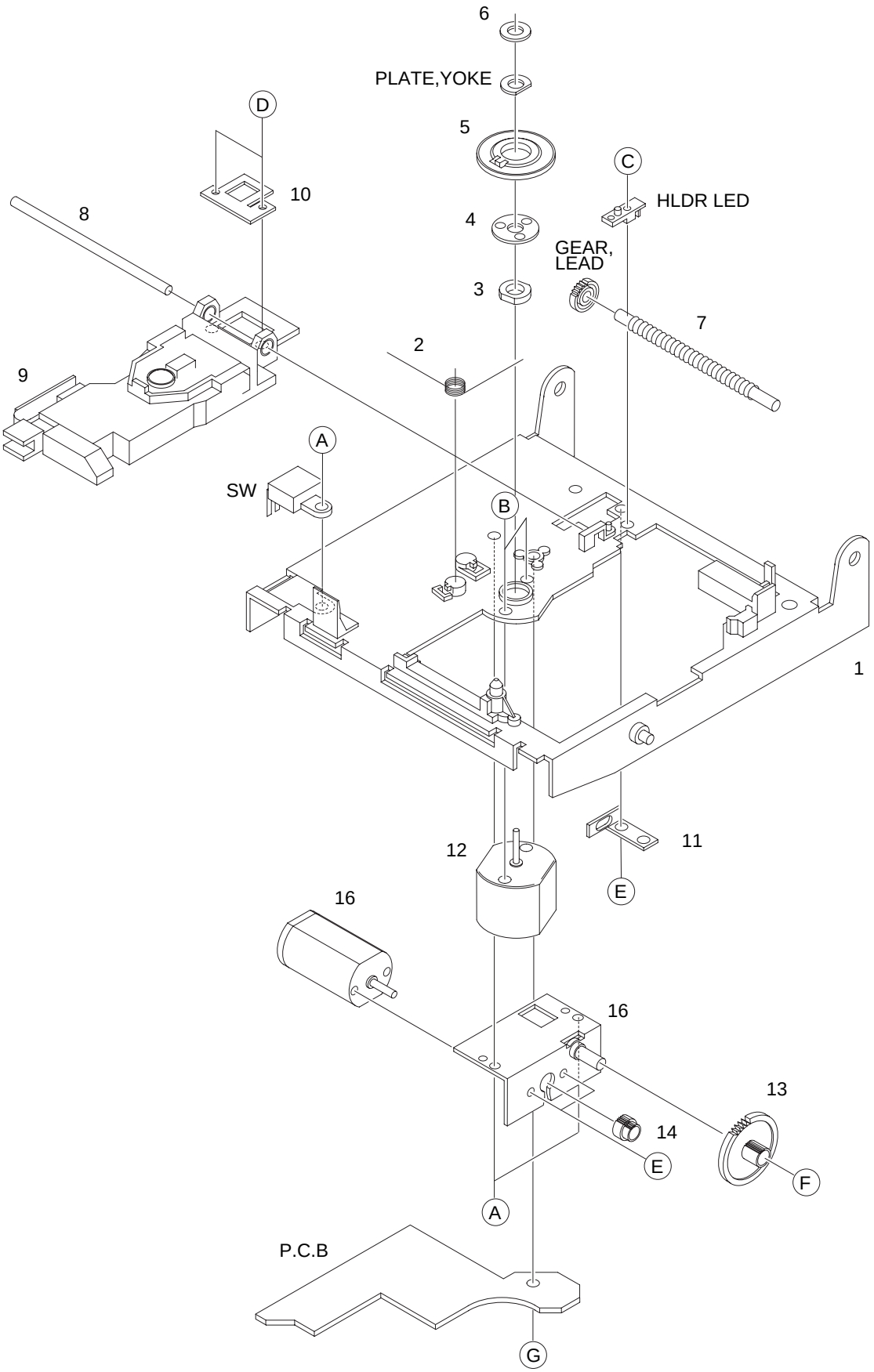


MD MECHANISM PARTS LIST 3/4

DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	87-ZG8-220-110		PLATE ASSY,LATCH
2	87-ZG8-259-010		SPR-T,LATCH
3	87-ZG8-230-110		LEVER,LATCH
4	87-ZG8-224-110		SPR-E,LATCH
5	87-ZG8-214-110		HLDR ASSY,CARTRIGE
6	87-ZG8-233-010		LEVER,SW H
7	87-ZG8-255-110		PLATE,CARTRIGE
8	87-ZG8-201-210		CHAS ASSY,MAIN
9	87-ZG8-256-010		LEVER,SW S2
10	87-ZG8-242-010		GEAR,MOT
11	87-ZG8-253-010		GEAR,REDUCTION S3
12	87-ZG8-246-010		GEAR,IDLER 2
13	87-ZG8-252-010		GEAR,REDUCTION L3
14	87-ZG8-231-010		LEVER,SHUTTER
15	87-ZG8-232-010		SPR-E,SHUTTER
16	87-ZG8-225-110		LEVER ASSY,CAM
17	87-ZG8-239-010		CAM,LOAD
18	87-ZG8-257-110		LEVER ASSY,REC
19	87-ZG8-213-010		PLATE,SLIDE R
20	87-ZG8-209-010		PLATE ASSY,SLIDE L
21	87-A90-605-010		HEAD,OWH RF325-74A
A	87-B10-129-010		VTT+1.7-3.5 W/O MFZN2-C
B	87-B10-128-010		V+1.7-2 W/O MFZN2-C
C	87-B10-130-010		W-P,1.23-3.1-0.25 SLIT
D	87-067-421-010		VTT+2-4
E	87-B10-131-010		VW+1.7-5 W/O MFZN2C

MD MECHANISM EXPLODED VIEW 4/4



MD MECHANISM PARTS LIST 4/4

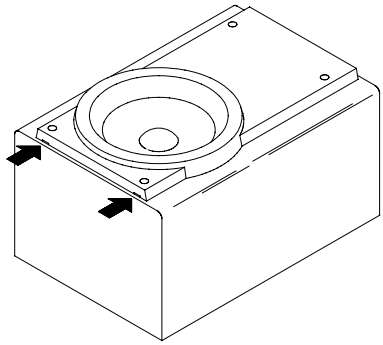
DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	87-ZG3-202-010		CHAS ASSY,OUT-SERT
2	87-ZG3-214-010		SPR-T,SPINDLE-A
3	83-ZG5-308-010		BRG,1.5-2
4	83-ZG5-305-010		SPR-P,DISC
5	83-ZG5-302-010		TURN TABLE,MD1
6	83-ZG5-605-010		MAGNET,CHUCK
7	87-ZG3-212-010		SHAFT,LEAD
8	87-ZG3-211-010		SHAFT,GUIDE
9	87-A90-613-010		PICKUP,KMS-260A
10	87-ZG3-216-010		SPR-P,RACK
11	87-ZG3-213-010		SPR-P,LEAD
12	87-A90-413-010		MOT,FF-110PH 9
13	87-ZG3-206-010		GEAR,A
14	87-ZG3-205-010		GEAR,MOT SL
15	87-ZG3-208-010		HLDR ASSY,MOTOR
16	87-A90-616-010		MOT,FF-N30VA
A	87-261-547-310		V+2-3 BLK (1)
B	87-263-523-310		SCREW, V+1.7-2
C	87-261-509-310		SCREW, V+1.4-4
D	87-067-393-010		SCREW +1.4-1.4
E	87-261-503-310		PRECISION SCREW, V+1.4-2
F	87-078-033-010		PW 1.2-2.5-0.25 SLT
G	87-341-035-210		SCREW,UT1+2-6

SPEAKER DISASSEMBLY INSTRUCTIONS

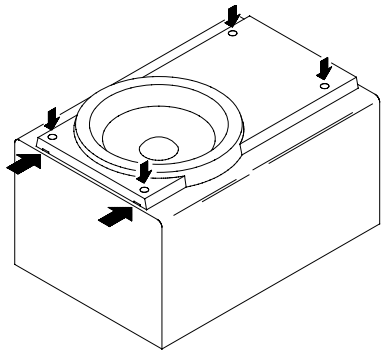
Type.1

Insert a flat-bladed screwdriver into the position indicated by the arrows and remove the panel. Remove the screws of each speaker unit andthen remove the speaker units.



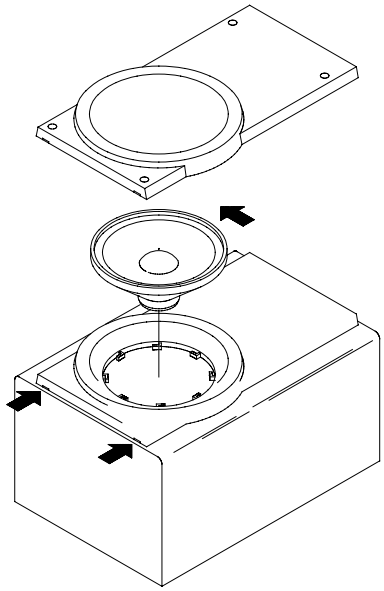
Type.2

Remove the grill frame and four pieces of rubber caps by pulling out with a flat-bladed screwdriver. Remove the screws from hold where installed rubber caps. Insert a flat-bladed screwdriver into the position indicated by the arrows and remove the panel. Remove the screws of each speaker unit and then remove the speaker units.

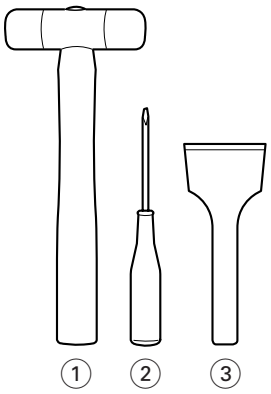


Type.3

Insert a flat-bladed screwdriver into the position indicated by the arrows and remove the panel. Turn the speaker unit to counter-clockwise direction while inserting a flat-bladed screwdriver into one of the hollows arround speaker unit, and then remove the speaker unit. After replacing the speaker unit, install it turnning to clock-wise direction unitil "click" sound comes out.



Type.4



TOOLS

① Plastic head hammer
② (⊖) flat head screwdriver
③ Cut chisel

How to Remove the PANEL, FR

1. Insert the (⊖) flat head screwdriver tip into the gap between the PANEL, FR and the PANEL, SPKR. Tap the head of the (⊖) flat head screwdriver with the plastic hammer head, and create the clearance as shown in Fig-1.

2. Insert the cut chisel in the clearance, and tap the head of the cut chisel with plastic hammer as shown in Fig-2, to remove the PANEL, FR.

3. Place the speaker horizontally. Tap head of the cut chisel with plastic hammer as shown in Fig-3, and remove the PANEL, FR completely.

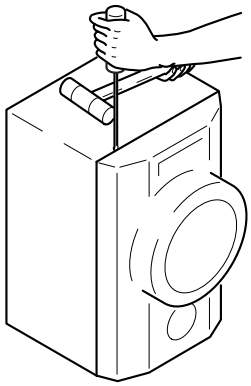


Fig-1

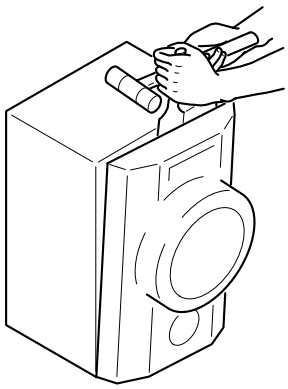


Fig-2

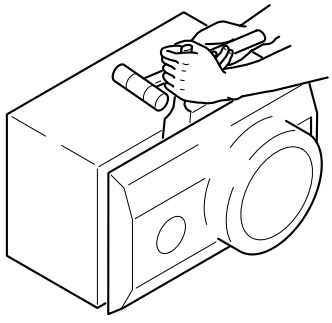


Fig-3

How to Attach the PANEL, FR

Attach the PANEL, FR to the PANEL, SPKR. Tap the four corners of the PANEL, FR with the plastic hammer to fit the PANEL, FR into the PANEL, SPKR completely.

SPEAKER PARTS LIST 1/1

DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	87-NSH-612-010		CERAMIC ASSY
2	87-NS7-611-010		CORD,SPKR
3	8Z-NSK-002-010		PANEL,BA
4	8Z-NSK-032-010		PANEL,FR N
5	86-NSZ-601-110		SPKR,120

サービス技術ニュース	
番号	連絡内容
G一　一	
G一　一	
G一　一	

アイワ株式会社 〒110-8710 東京都台東区池之端1-2-11 ☎03(3827)3111 （代表）
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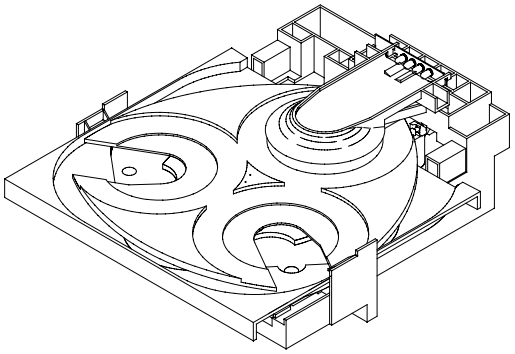
4ZG-1



CD MECHANISM

• BASIC CD MECHANISM:3ZG-2 E1

• TYPE: English

BASIC NAME	DERIVATION NAME					
4ZG-1	V	O	S1	D	SH	

■ This Service Manual has various derivation.Derivation name is indicated by the Service Manual for each model.

SERVICE MANUAL

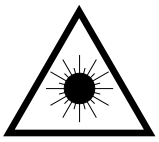
S/M Code No 09-985-249-80T

PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

This set employs laser. Therefore, be sure to follow carefully the instructions below when servicing.

WARNING!

WHEN SERVICING, DO NOT APPROACH THE LASER EXIT WITH THE EYE TOO CLOSELY. IN CASE IT IS NECESSARY TO CONFIRM LASER BEAM EMISSION. BE SURE TO OBSERVE FROM A DISTANCE OF MORE THAN 30cm FROM THE SURFACE OF THE OBJECTIVE LENS ON THE OPTICAL PICK-UP BLOCK.



- Caution: Invisible laser radiation when open and interlocks defeated avoid exposure to beam.
- Advarsel: Usynling laserstråling ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

VAROITUS!

Laiteen Käyttäminen muulla kuin tässä käyttöohjeessa mainitulla tavalla saattaa altistaa käyt-täjän turvallisuusluokan 1 ylittävälle näkymättömälle lasersäteilylle.

VARNING!

Om apparaten används på annat sätt än vad som specificeras i denna bruksanvising, kan användaren utsättas för osynling laserstrålning, som överskrider gränsen för laserklass 1.

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

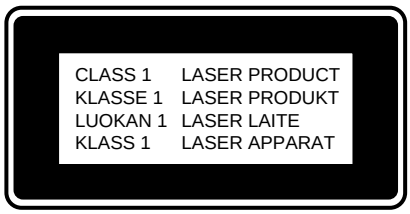
ATTENTION

L'utilisation de commandes, réglages ou procédures autres que ceux spécifiés peut entraîner une dangereuse exposition aux radiations.

ADVARSEL!

Usynlig laserstråling ved åbning, når sikkerhedsafbrydereer ude af funktion. Undgå udsættelse for stråling.

This Compact Disc player is classified as a CLASS 1 LASER product.
The CLASS 1 LASER PRODUCT label is located on the rear exterior.

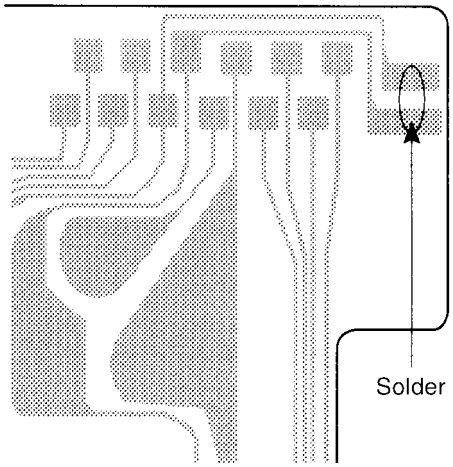


Precaution to replace Optical block (KSS-213F)

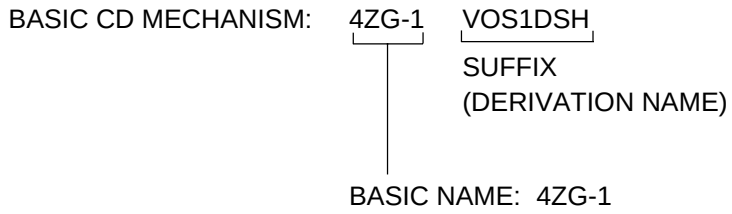
Body or clothes electrostatic potential could ruin laser diode in the optical block. Be sure ground body and workbench, and use care the clothes do not touch the diode.

1) After the connection, remove solder shown in the right figure.

PICK-UP Assy P.C.B



This is the SERVICE MANUAL for the BASIC CD MECHANISM of BASIC NAME: 4ZG-1. This BASIC NAME includes the following models as shown under the SUFFIX name: DERIVATION NAME. Please use this manual with the separate SERVICE MANUAL for DERIVATION NAME.



BASIC NAME	DERIVATION NAME							
4ZG-1	V	O	S1	D	SH	—	—	—

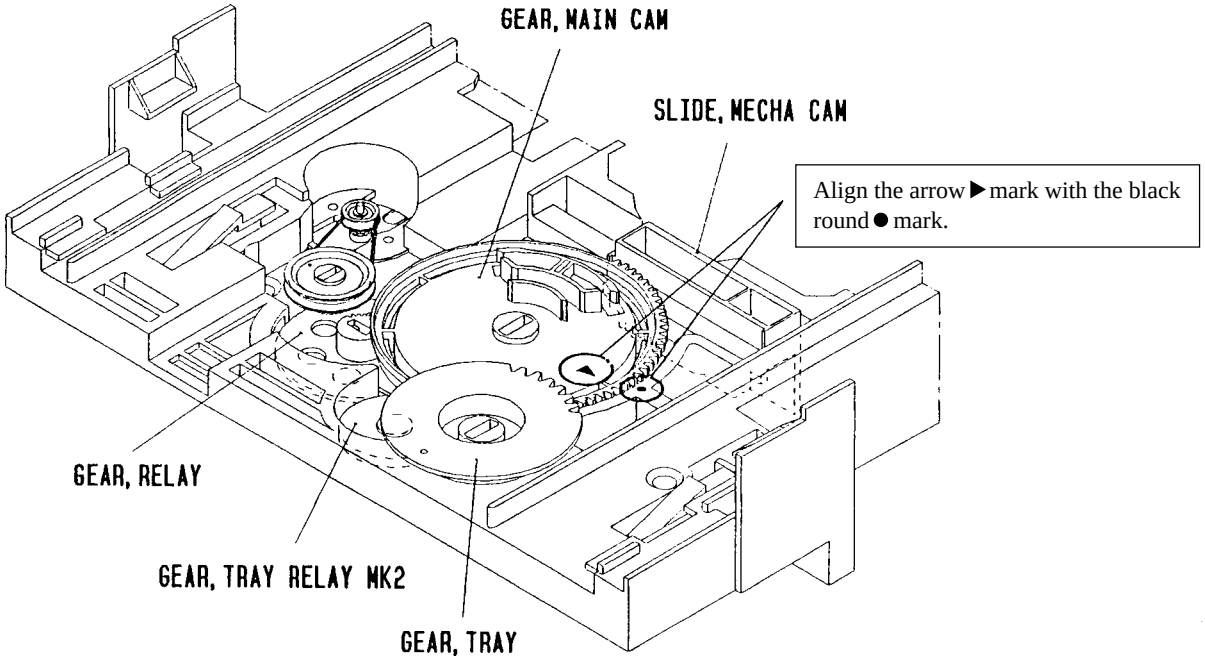
DERIVATION NAME

- V: VIDEO OUT
- O: On screen display
- S1: THE 1st SONY IC MODEL
- D: Digital output function
- SH: Pick up equipped with shutter

How to Adjust the Rotating Phase of the Gear, Main Cam

1) Push down the hooking catch of the CHAS. MECH, and remove the TRAY.
2) Align the arrow mark of the Gear, Main Cam with the black round mark of the CHAS, MECHA as shown below.
3) Confirm that the Slide, Mech Cam is located in the right position, then insert the TRAY gently.

Caution: If the rotating phase of the Gear, Main Cam is incorrectly adjusted, the chucking operation and tray movement will have malfunction.



ELECTRICAL MAIN PARTS LIST

DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

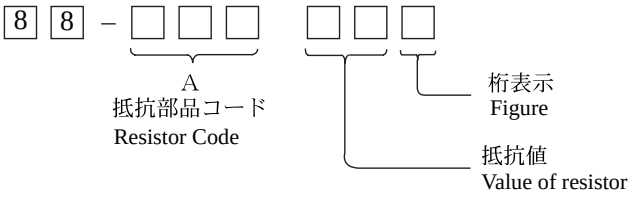
REF. NO	PART NO.	KANRI NO.	DESCRIPTION
IC			
	87-A20-547-010		C-IC,CXA1992AR
	87-A20-919-040		C-IC,BA5915FP
	87-A20-917-010		C-IC,CXD2540Q-1/2
	84-ZG1-697-010		C-IC,UPD78016FGC-549
	87-017-825-010		IC,GP1F32T
	87-017-760-080		IC,M51943BML
	87-A20-602-040		C-IC,M5291FP
	87-A20-925-040		C-IC,BA05FP
	87-A20-905-040		C-IC,BA033FP
	87-001-873-010		IC,LB1644
	87-A20-920-010		C-IC,CL680-D1
	87-A20-921-040		C-IC,SN74LVU04APW
	87-A20-656-040		C-IC,MB81V4260S-60/70PFTN
	84-ZG1-695-040		C-IC,LH5V2RN1
	87-A20-975-040		C-IC,SN74LV74APW
	87-A20-974-040		C-IC,LC74781M-9017
	87-A20-918-040		C-IC,SM5878AM
TRANSISTOR			
	87-026-463-080		TR,2SA933S (0.3W)
	87-026-237-080		CHIP-TR,DTC124XK
	89-327-125-080		CHIP TR,2SC2712GR
	87-026-231-080		CHIP-TRANSISTER,DTA124XK
	87-A30-117-010		TR,2SA1357
	89-111-625-080		TR,2SA1162 (0.15W)
	87-026-580-080		C-TR,DTA123JK
	87-026-470-080		TR,HN1C03F (0.3W)
DIODE			
	87-020-027-080		CHIP-DIODE 1SS184
	87-017-024-040		C-DIODE,DA204K
	87-A40-180-040		C-DIODE,SB07-015C
	87-A40-384-080		C-ZENER,UDZ3.3B
3CD C.B			
C101	87-010-182-080		C-CAP,S 2200P-50 B
C102	87-016-669-080		C-CAP,S 0.1-25 K B
C103	87-016-669-080		C-CAP,S 0.1-25 K B
C104	87-016-669-080		C-CAP,S 0.1-25 K B
C105	87-010-404-040		CAP,E 4.7-50 SME
C106	87-016-369-080		C-CAP,S 0.033-25 B K
C107	87-010-197-080		CAP, CHIP 0.01 DM
C108	87-010-401-040		CAP,E 1-50 SME
C109	87-010-382-040		CAP,E 22-25 SME
C110	87-010-213-080		C-CAP,S 0.015-50 B
C111	87-010-263-040		CAP,E 100-10
C112	87-010-197-080		CAP, CHIP 0.01 DM
C113	87-016-369-080		C-CAP,S 0.033-25 B K
C114	87-016-369-080		C-CAP,S 0.033-25 B K
C115	87-016-369-080		C-CAP,S 0.033-25 B K
C116	87-012-158-080		C-CAP,S 390P-50 CH
C117	87-012-154-080		C-CAP,S 150P-50 CH
C118	87-010-494-040		CAP,E 1-50 GAS
C119	87-010-152-080		C-CAP,S 8P-50 CH
C120	87-010-992-080		C-CAP,S 0.047-25 B
C121	87-010-992-080		C-CAP,S 0.047-25 B
C123	87-016-669-080		C-CAP,S 0.1-25 K B
C125	87-010-198-080		CAP, CHIP 0.022
C126	87-016-669-080		C-CAP,S 0.1-25 K B
C127	87-010-555-040		CAP,E 100-10 GAS
C130	87-010-555-040		CAP,E 100-10 GAS
C131	87-010-555-040		CAP,E 100-10 GAS
C132	87-010-178-080		CHIP CAP 1000P
C133	87-010-555-040		CAP,E 100-10 GAS
C134	87-010-196-080		CHIP CAPACITOR,0.1-25
C135	87-010-196-080		CHIP CAPACITOR,0.1-25
C136	87-010-196-080		CHIP CAPACITOR,0.1-25
C137	87-010-196-080		CHIP CAPACITOR,0.1-25
C138	87-010-182-080		C-CAP,S 2200P-50 B
C139	87-010-197-080		CAP, CHIP 0.01 DM
C140	87-010-112-040		CAP,E 100-16
C141	87-010-196-080		CHIP CAPACITOR,0.1-25
C142	87-010-196-080		CHIP CAPACITOR,0.1-25
C143	87-010-213-080		C-CAP,S 0.015-50 B
C151	87-010-263-040		CAP,E 100-10
C152	87-010-197-080		CAP, CHIP 0.01 DM
C153	87-A10-893-040		CAP,E 220-10 M PW
C154	87-010-197-080		CAP, CHIP 0.01 DM
C155	87-010-184-080		CHIP CAPACITOR 3300P(K)
C156	87-010-992-080		C-CAP,S 0.047-25 B
C157	87-010-992-080		C-CAP,S 0.047-25 B
C158	87-012-156-080		C-CAP,S 220P-50 CH
C159	87-016-526-080		C-CAP,S 0.47-16 BK
C160	87-010-314-080		C-CAP,S 22P-50V
C161	87-010-182-080		C-CAP,S 2200P-50 B
C162	87-010-178-080		CHIP CAP 1000P
C201	87-016-669-080		C-CAP,S 0.1-25 K B
C204	87-010-197-080		CAP, CHIP 0.01 DM
C205	87-010-379-040		CAP,E 22-16 M SME
C206	87-010-322-080		C-CAP,S 100P-50 CH
C207	87-010-322-080		C-CAP,S 100P-50 CH
C208	87-010-322-080		C-CAP,S 100P-50 CH
C209	87-010-322-080		C-CAP,S 100P-50 CH
C210	87-016-669-080		C-CAP,S 0.1-25 K B
C211	87-010-263-040		CAP,E 100-10
C213	87-010-190-080		S CHIP F 0.01
C214	87-010-196-080		CHIP CAPACITOR,0.1-25
C301	87-016-251-040		CAP,E 220-16 SMG
C302	87-012-140-080		CAP 470P
C303	87-010-178-080		CHIP CAP 1000P
C304	87-010-384-040		CAP,E 100-25 SME
C305	87-010-982-040		CAP,E 33-25 GAS
C306	87-010-112-040		CAP,E 100-16
C307	87-010-196-080		CHIP CAPACITOR,0.1-25
C308	87-010-263-040		CAP,E 100-10
C309	87-010-196-080		CHIP CAPACITOR,0.1-25
C310	87-010-263-040		CAP,E 100-10
C311	87-010-196-080		CHIP CAPACITOR,0.1-25
C312	87-010-178-080		CHIP CAP 1000P
C320	87-010-196-080		CHIP CAPACITOR,0.1-25
C401	87-016-044-040		CAP,E 100-16 GAS
C402	87-010-190-080		S CHIP F 0.01
C403	87-010-190-080		S CHIP F 0.01
C501	87-010-197-080		CAP, CHIP 0.01 DM
C502	87-010-197-080		CAP, CHIP 0.01 DM
C503	87-010-197-080		CAP, CHIP 0.01 DM
C504	87-010-154-080		CAP CHIP 10P
C505	87-010-154-080		CAP CHIP 10P
C506	87-010-197-080		CAP, CHIP 0.01 DM
C508	87-010-263-040		CAP,E 100-10
C509	87-016-669-080		C-CAP,S 0.1-25 K B
C510	87-010-263-040		CAP,E 100-10
C511	87-016-669-080		C-CAP,S 0.1-25 K B
C512	87-010-197-080		CAP, CHIP 0.01 DM
C513	87-010-197-080		CAP, CHIP 0.01 DM
C514	87-010-197-080		CAP, CHIP 0.01 DM
C518	87-010-322-080		C-CAP,S 100P-50 CH
C519	87-012-145-080		CAP, CHIP S 270P CH
C520	87-012-157-080		C-CAP,S 330P-50 CH
C521	87-012-154-080		C-CAP,S 150P-50 CH
C522	87-010-371-080		CAP, ELECT 470-6.3V
C523	87-010-197-080		CAP, CHIP 0.01 DM
C524	87-010-197-080		CAP, CHIP 0.01 DM
C525	87-010-197-080		CAP, CHIP 0.01 DM
C526	87-010-197-080		CAP, CHIP 0.01 DM

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
C527	87-010-197-080		CAP, CHIP 0.01 DM
C528	87-010-197-080		CAP, CHIP 0.01 DM
C529	87-010-197-080		CAP, CHIP 0.01 DM
C530	87-010-197-080		CAP, CHIP 0.01 DM
C531	87-010-197-080		CAP, CHIP 0.01 DM
C532	87-010-374-040		CAP,E 47-10
C533	87-010-197-080		CAP, CHIP 0.01 DM
C534	87-010-555-040		CAP,E 100-10 GAS
C535	87-010-197-080		CAP, CHIP 0.01 DM
C536	87-010-078-040		CAP,E 47-6.3 5L
C537	87-010-197-080		CAP, CHIP 0.01 DM
C538	87-010-196-080		CHIP CAPACITOR,0.1-25
C539	87-016-669-080		C-CAP,S 0.1-25 K B
C540	87-010-078-040		CAP,E 47-6.3 5L
C541	87-010-197-080		CAP, CHIP 0.01 DM
C542	87-010-318-080		C-CAP,S 47P-50 CH
C544	87-010-197-080		CAP, CHIP 0.01 DM
C546	87-010-197-080		CAP, CHIP 0.01 DM
C549	87-010-494-040		CAP,E 1-50 GAS
C550	87-010-196-080		CHIP CAPACITOR,0.1-25
C551	87-012-153-080		C-CAP,S 120P-50 CH
C552	87-016-526-080		C-CAP,S 0.47-16 BK
C554	87-010-197-080		CAP, CHIP 0.01 DM
C556	87-010-378-040		CAP,E 10-16
C557	87-010-316-080		C-CAP,S 33P-50 CH
C558	87-010-315-080		C-CAP,S 27P-50 CH
C560	87-010-197-080		CAP, CHIP 0.01 DM
C601	87-010-197-080		CAP, CHIP 0.01 DM
C602	87-010-197-080		CAP, CHIP 0.01 DM
C603	87-010-112-040		CAP,E 100-16
C604	87-010-196-080		CHIP CAPACITOR,0.1-25
C605	87-010-197-080		CAP, CHIP 0.01 DM
C606	87-010-197-080		CAP, CHIP 0.01 DM
C607	87-010-313-080		CAP, CHIP 18P
C608	87-010-313-080		CAP, CHIP 18P
C609	87-010-178-080		CHIP CAP 1000P
C610	87-010-178-080		CHIP CAP 1000P
C611	87-010-178-080		CHIP CAP 1000P
C612	87-010-178-080		CHIP CAP 1000P
C613	87-010-403-040		CAP,E 3.3-50 SME
C614	87-010-403-040		CAP,E 3.3-50 SME
C615	87-010-318-080		C-CAP,S 47P-50 CH
C616	87-010-318-080		C-CAP,S 47P-50 CH
CN101	87-A60-424-010		CONN,16P V TOC-B
CN102	87-099-199-010		CONN,6P 6216 H
CN401	87-099-212-010		CONN,5P 6216 V
CN403	87-099-030-010		CONN,13P 6216H
J501	87-009-502-010		JACK,PIN 1P Y EARTH
L101	87-005-196-080		COIL,10UH
L301	87-A50-095-010		COIL,68UH RCR875D
L302	87-005-426-080		COIL,3.3UH K FLR50
L502	87-005-204-080		COIL,47UH
L503	87-005-189-080		COIL 2.7UH
L504	87-005-187-080		COIL,1.8UH
L505	87-005-204-080		COIL,47UH
L506	87-005-204-080		COIL,47UH
L507	87-005-204-080		COIL,47UH
L508	87-005-817-080		C-COIL, 33UH J FLC32
M401	87-045-305-010		MOTOR, RF-500TB DC-5V (2MA)
R130	87-022-364-080		C-RES,S 82K-1/10W F
R131	87-022-364-080		C-RES,S 82K-1/10W F
R132	87-022-364-080		C-RES,S 82K-1/10W F
R133	87-022-364-080		C-RES,S 82K-1/10W F
R134	87-022-364-080		C-RES,S 82K-1/10W F
R135	87-022-364-080		C-RES,S 82K-1/10W F
R507	87-A00-408-080		C-RES,S 2K-1/10W D
S201	87-A90-162-010		SW,SL 1-1-3 SSSU
S401	87-036-109-010		PUSH SWITCH
S402	87-036-109-010		PUSH SWITCH
W1	84-ZG1-673-010		F-CABLE,5P 1.25 210MM BLACK N
W2	85-NFT-611-110		FF-CABLE 16P-1.0
W3	84-ZG1-630-010		CABLE FFC 6P-1.25
X201	87-A70-124-080		VIB,CER 8.0MHZ
X501	87-A70-125-080		VIB,XTAL 27MHZ 50PPM
X601	87-030-270-080		VIB,XTAL 16.9344MHZ
LED C.B			
LED401	87-070-200-080		LED,SLP636C-81-S-T1
LED402	87-017-350-080		LED,SEL1550CM
LED403	87-017-350-080		LED,SEL1550CM
LED404	87-070-200-080		LED,SLP636C-81-S-T1
T-T C.B			
C401	87-018-214-080		CAP TC U 0.1-50F
CON401	86-NFZ-675-010		CONN,5P H 6216-11H
PS401	87-026-573-010		IC,GP1S53V
DRIVE C.B			
CN3	87-009-349-010		CONN,6P H WHT PH
M20	87-045-358-010		MOT,RF-310TA 43
M21	87-045-356-010		MOT,RF-310TA 30
SW1	87-A90-042-010		SW,LEAF MSW-17310MVPO
CD MOTOR C.B			
CN4	87-099-210-010		CONN,5P H BLK 6216
M1	87-045-305-010		MOT,RF-500TB
SW1	87-035-110-010		SW,MICRO SPPB62
SW2	87-035-110-010		SW,MICRO SPPB62

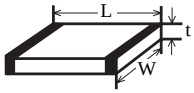
- Regarding connectors, they are not stocked as they are not the initial order items.
  The connectors are available after they are supplied from connector manufacturers upon the order is received.

○ チップ抵抗部品コード / CHIP RESISTOR PART CODE

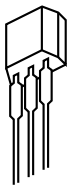
チップ抵抗部品コードの成り立ち
Chip Resistor Part Coding



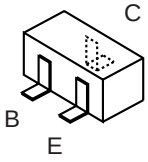
チップ抵抗
Chip resistor

容量 Wattage	種類 Type	許容誤差 Tolerance	記号 Symbol	寸法 / Diamensions (mm)				抵抗コード　: A Resistor Code : A
				外形 / Form	L	W	t	
1/16W	1608	5%	CJ		1.6	0.8	0.45	108
1/10W	2125	5%	CJ		2	1.25	0.45	118
1/8W	3216	5%	CJ		3.2	1.6	0.55	128

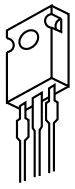
TRANSISTOR ILLUSTRATION



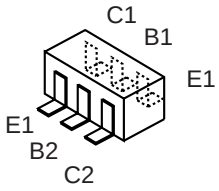
2SA933S



2SA1162
2SC2712
DTA123JK
DTA124XK
DTC124XK

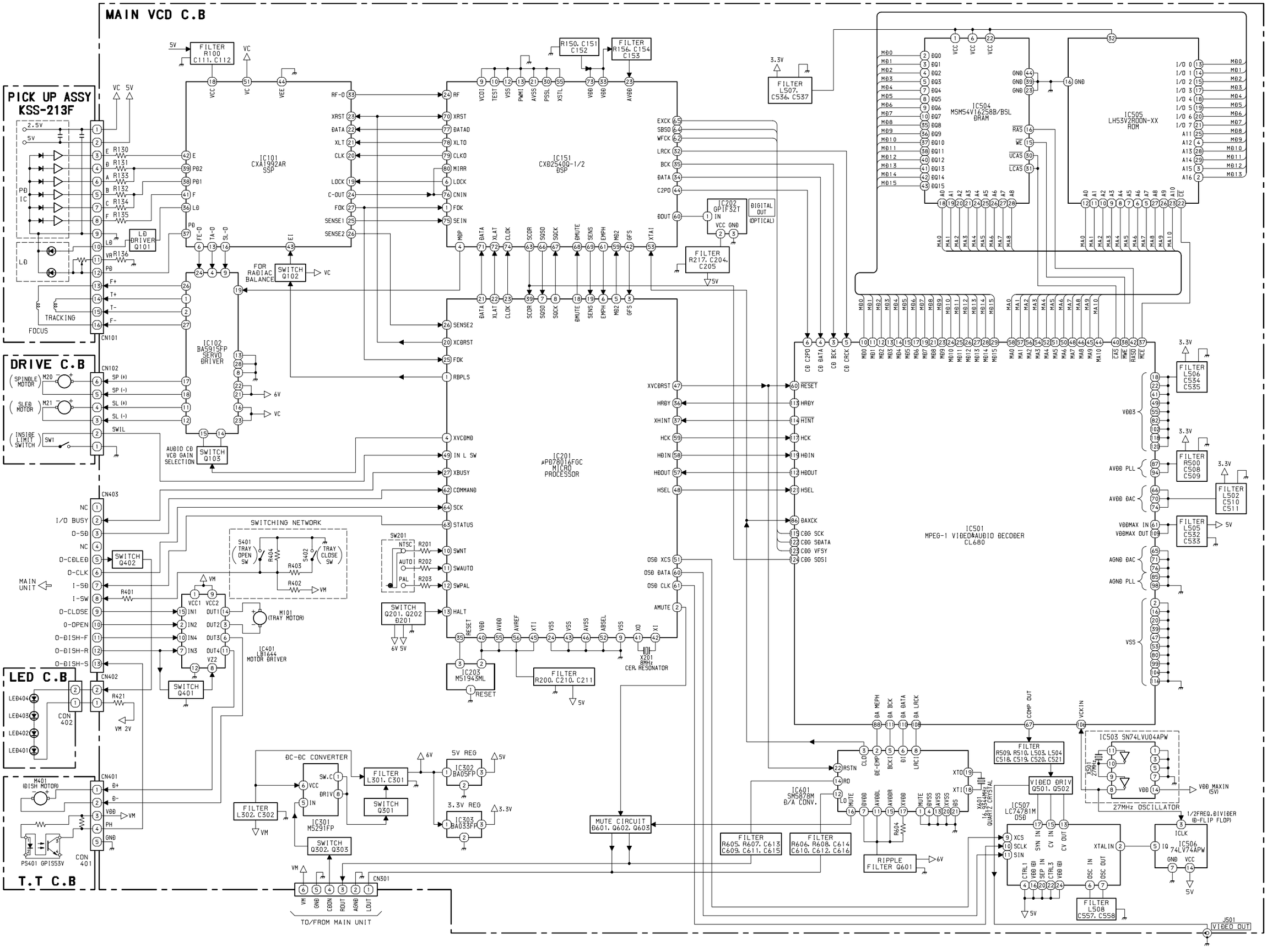


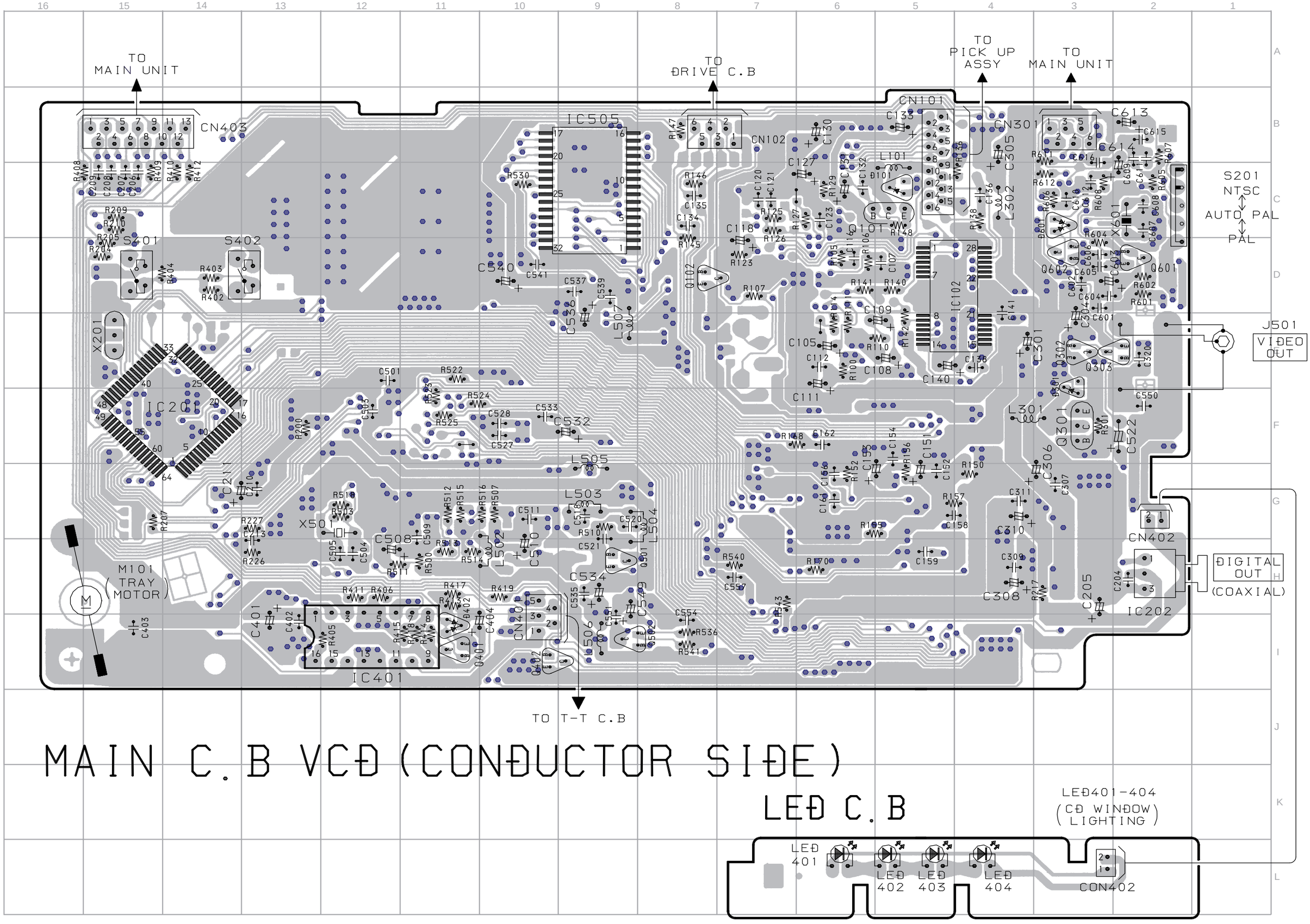
2SA1357

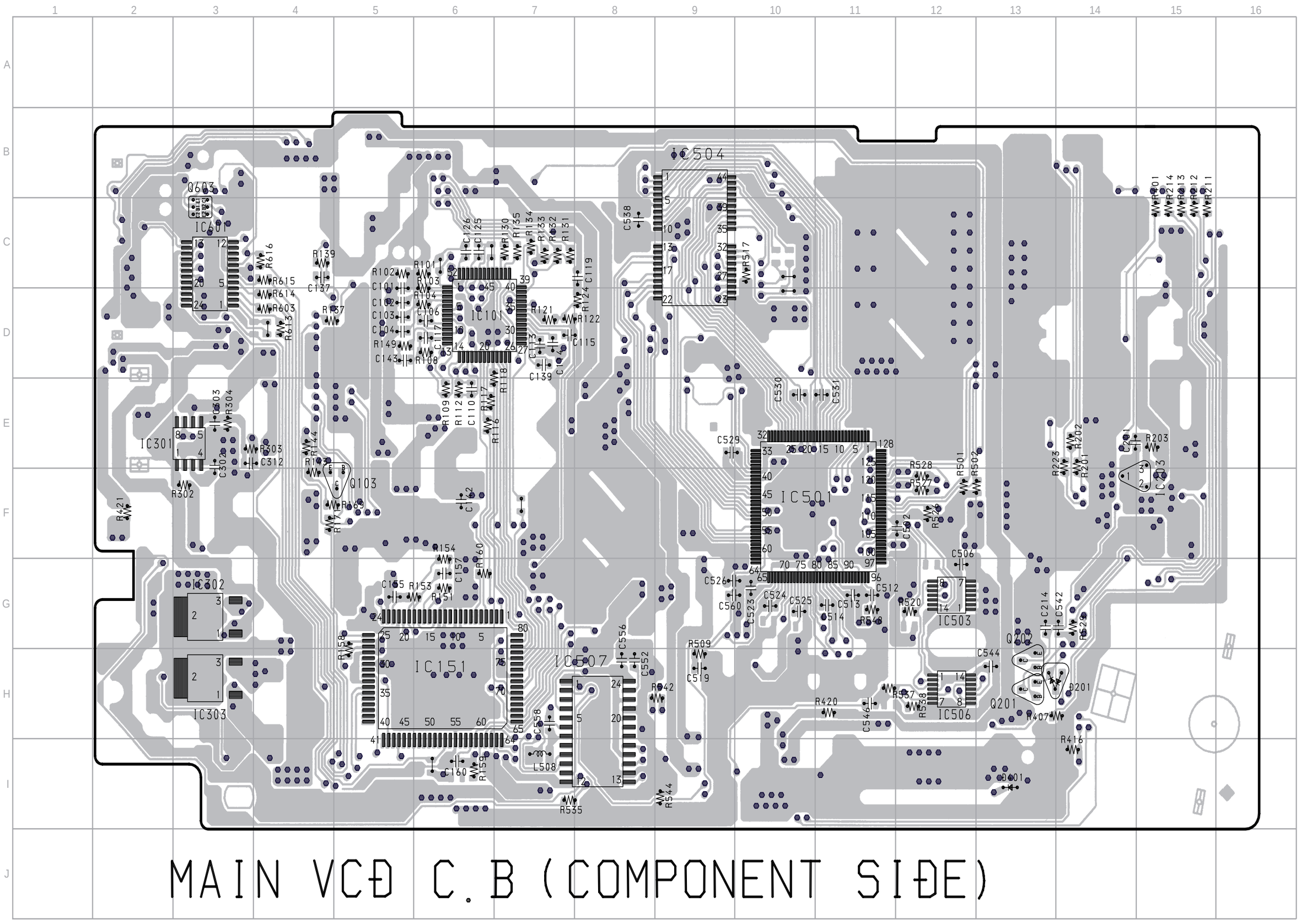


HN1C03F

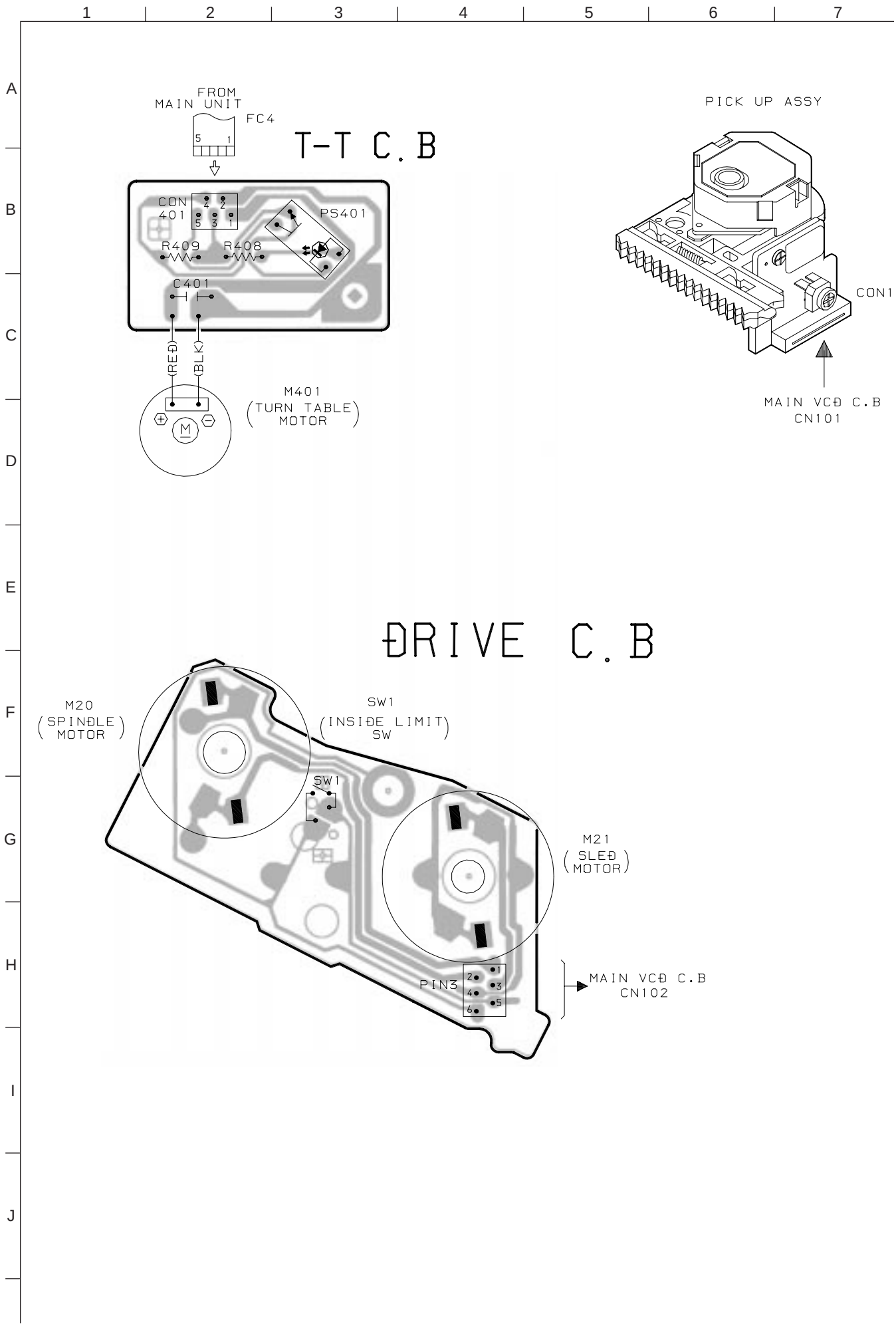
BLOCK DIAGRAM



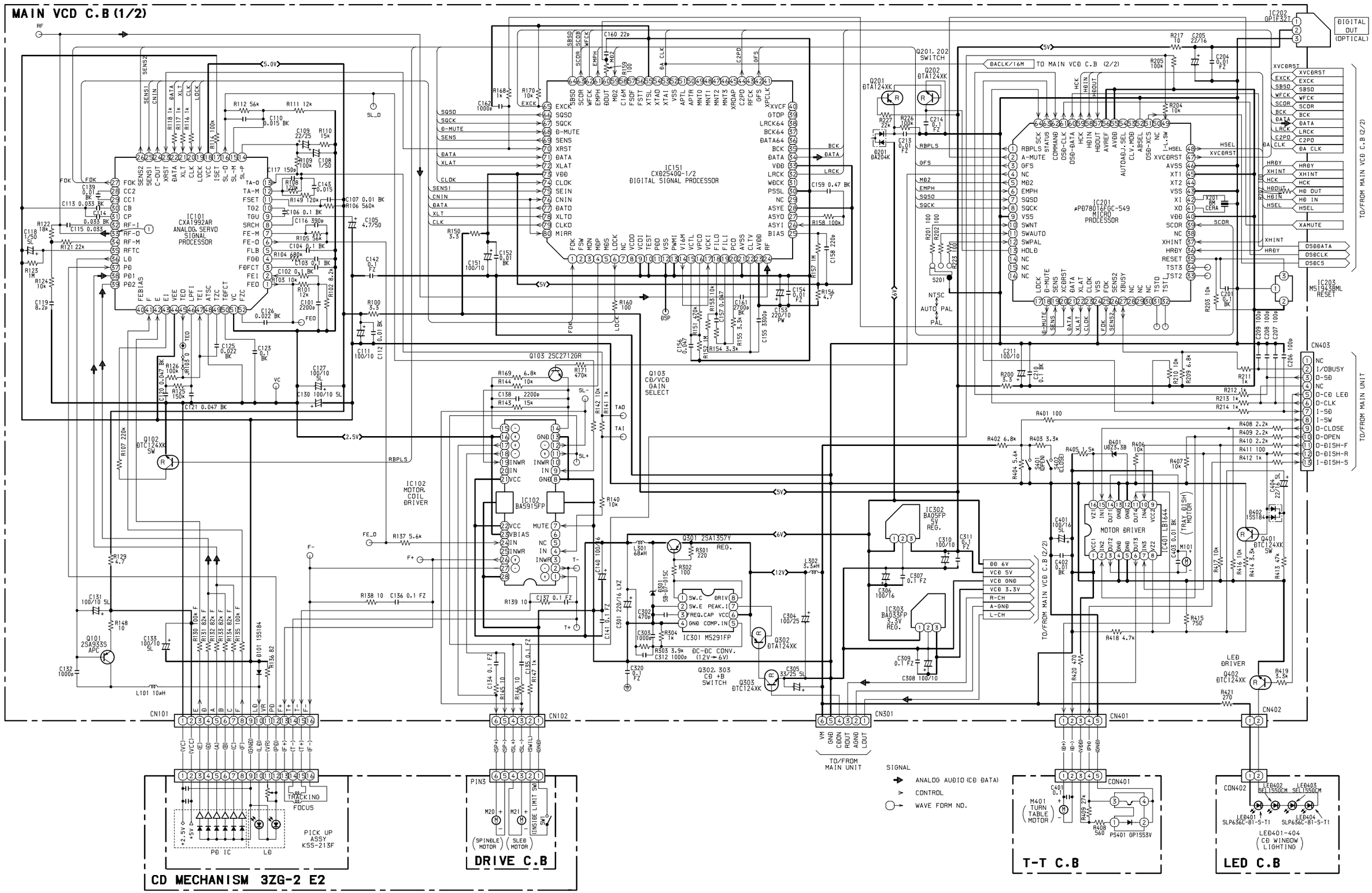

TO MAIN UNIT
TO ÐRIVE C.B
TO PICK UP ASSY
TO MAIN UNIT
CN403
CN102
CN101
CN301
CN402
IC505
IC201
IC401
IC202
IC102
S401
S402
S201 NTSC AUTO PAL PAL
J501 VIÐEO OUT
ÐIGITAL OUT (COAXIAL)
M101 (TRAY MOTOR)
TO T-T C.B
MAIN C.B VCÐ (CONÐUCTOR SIÐE)
LEÐ C.B
LEÐ401-404 (CÐ WINÐOW LIGHTING)
LEÐ 401
LEÐ 402
LEÐ 403
LEÐ 404
CON402

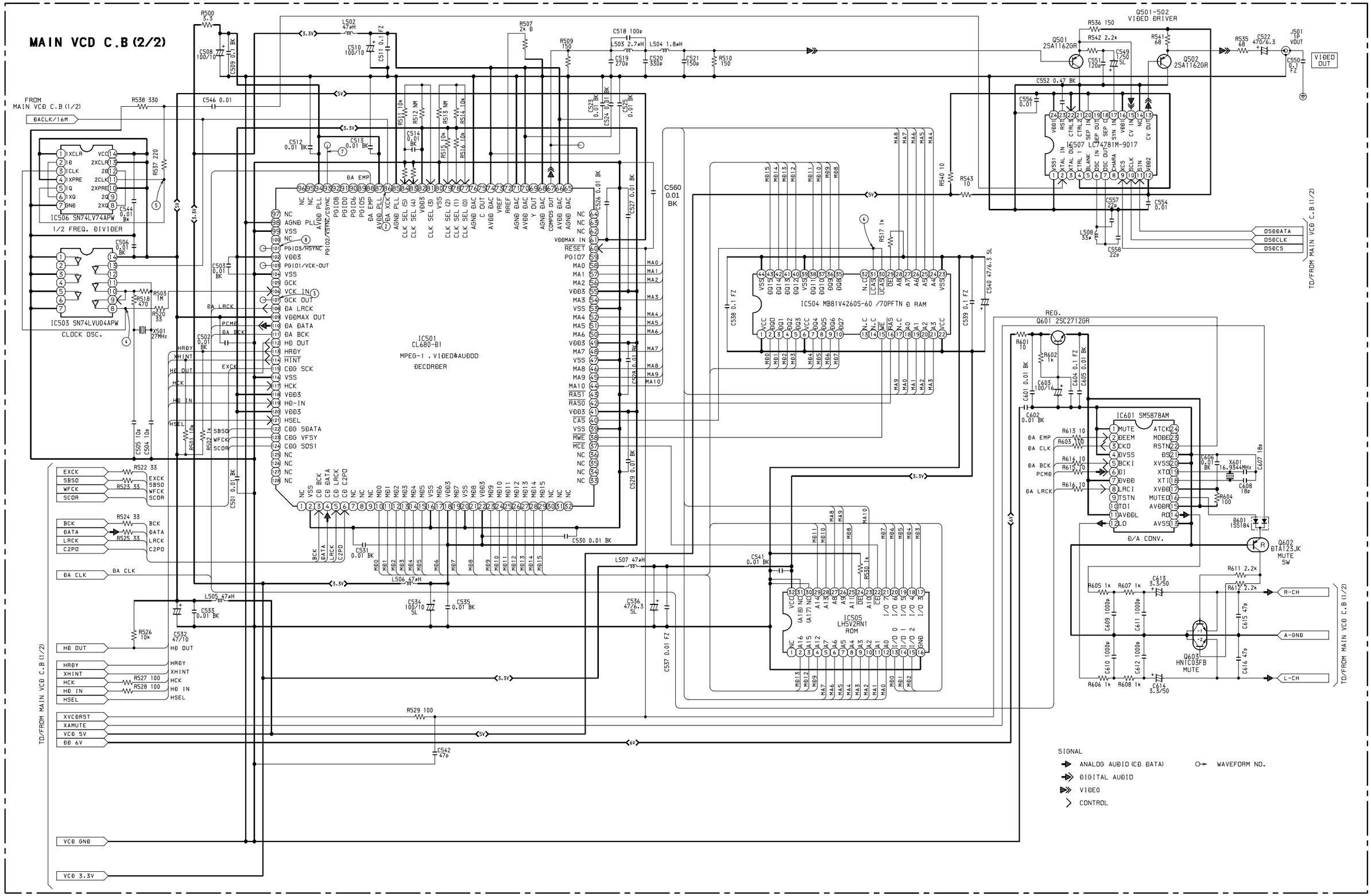


MAIN VCÐ C.B (COMPONENT SIÐE)


FROM
MAIN UNIT
FC4
5
1
T-T C.B
CON
401
4
2
5
3
1
PS401
R409
R408
C401
(RED)
(BLK)
M401
(TURN TABLE
MOTOR)
M
PICK UP ASSY
CON1
MAIN VCD C.B
CN101
DRIVE C.B
M20
(SPINDLE
MOTOR)
SW1
(INSIDE LIMIT
SW)
SW1
M21
(SLED
MOTOR)
PIN3
1
2
3
4
5
6
MAIN VCD C.B
CN102

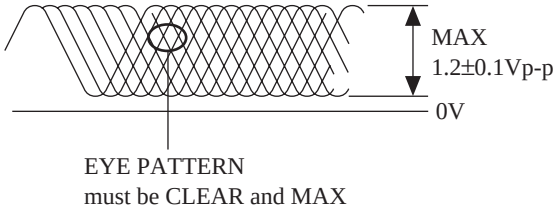
SCHEMATIC DIAGRAM-1




MAIN VCD C.B (2/2)
FROM MAIN VCD C.B (1/2)
ÐACLK/16M
IC506 SN74LV74APW
1/2 FREQ. ÐIVIÐER
IC503 SN74LVU04APW
CLOCK OSC.
X501 27MHz
IC501 CL680-Ð1
MPEG-1 . VIÐEO&AUÐIO ÐECORÐER
IC504 MB81V4260S-60 /70PFTN Ð RAM
IC505 LH5V2RN1 ROM
IC507 LC74781M-9017
Q501-502 VIÐEO ÐRIVER
Q501 2SA1162GR
Q502 2SA1162GR
REG. Q601 2SC2712GR
IC601 SM5878AM
Ð/A CONV.
Q602 ÐTA123JK MUTE SW
Q603 HN1C03FB MUTE
D601 1SS184
VIÐEO OUT
TO/FROM MAIN VCÐ C.B (1/2)
TO/FROM MAIN VCÐ C.B (1/2)
OSÐÐATA
OSÐCLK
OSÐCS
R-CH
A-GNÐ
L-CH
SIGNAL
ANALOG AUÐIO (CÐ ÐATA)
ÐIGITAL AUÐIO
VIÐEO
CONTROL
WAVEFORM NO.

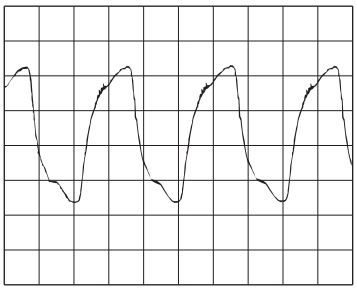
WAVE FORM

① IC101 Pin ㉝ (RF-O)
VOLT/DIV: 200mV
TIME/DIV: 0.5µS

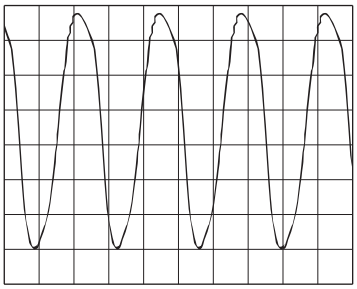


EYE PATTERN
must be CLEAR and MAX

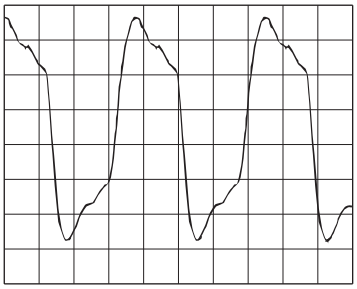
② IC501 Pin ㊽ DA XCK
16.93MHz
VOLT/DIV: 1V
TIME/DIV: 20nS



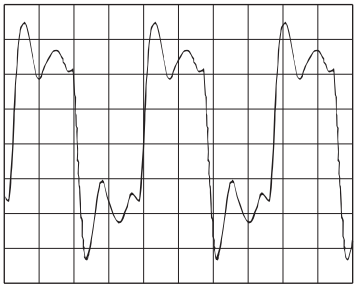
③ IC501 Pin ⑩⑦ GCK OUT
42.3MHz
VOLT/DIV: 1V
TIME/DIV: 10nS



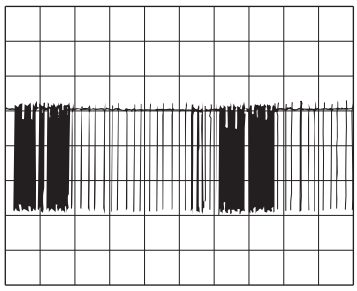
④ IC503 Pin ⑧ 33 VCK
27MHz±1.35kHz
VOLT/DIV: 1V
TIME/DIV: 10nS



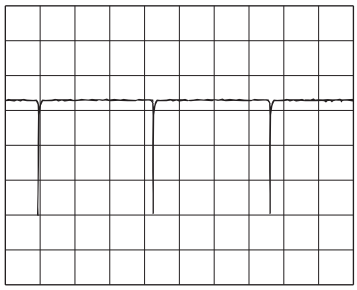
⑤ IC506 Pin ⑪ OSD CLK
13.5MHz±675Hz
VOLT/DIV: 1V
TIME/DIV: 20nS



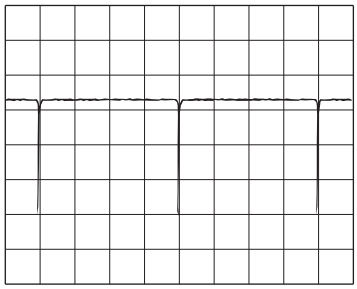
⑥ IC504 Pin ㉚ $\overline{\text{UCAS}}$
(Pin ㉛ $\overline{\text{LCAS}}$)
VOLT/DIV: 1V
TIME/DIV: 2µS



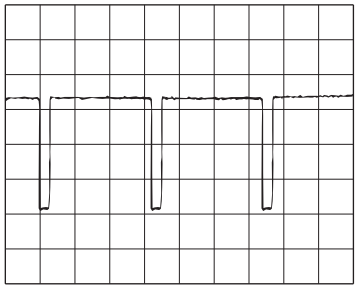
⑦ IC501 Pin ㉝ $\overline{\text{VSync}}$
NTSC
VOLT/DIV: 1V
TIME/DIV: 5mS



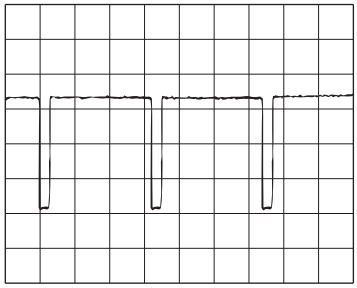
⑧ IC501 Pin ㉝ $\overline{\text{VSync}}$
PAL
VOLT/DIV: 1V
TIME/DIV: 5mS



⑧ IC501 Pin ⑩① $\overline{\text{HSync}}$
PAL
VOLT/DIV: 1V
TIME/DIV: 20µS



IC501 Pin ⑩① $\overline{\text{HSync}}$
NTSC
VOLT/DIV: 1V
TIME/DIV: 20µS



IC DESCRIPTION

IC, CXA1992AR

Pin No.	Pin Name	I/O	Description
1	FEO	O	Output terminal for focus error amplifier. Internally connected to window comparator input for bias condition.
2	FEI	I	Input terminal for focus error.
3	FDFCT	I	Capacitor connection terminal for time constant used when there is defect.
4	FGD	I	This pin is connected to GND via capacitor when high frequency gain of the focus servo is attenuated.
5	FLB	I	This is a pin where the time constant is externally connected to raise the low frequency gain of the focus servo.
6	FE_O	O	Focus drive output.
7	FEM	I	Focus amplifier inverted input pin.
8	SRCH	I	This is a pin where the time constant is externally connected to generate the focus search waveform.
9	TGU	I	This is a pin where the selection time constant is externally connected to set the tracking servo the high frequency gain.
10	TG2	I	This is a pin where the selection time constant is externally connected to set the tracking high frequency gain.
11	FSET	I	Pin for setting peak of the phase compensator of the focus tracking.
12	TA_M	I	Tracking amplifier inverted input pin.
13	TA_O	O	Tracking drive output.
14	SL_P	I	Sled amplifier non-inverted input pin.
15	SL_M	I	Sled amplifier inverted input pin.
16	SL_O	O	Sled drive output.
17	ISET	I	The current which determines height of the focus search, track jump and sled kick is input with external resistance connected.
18	Vcc	I	Power supply.
19	LOCK	I	“L” setting starts sled disorder-prevention circuit. (Not pull-up resistance)
20	CLK	I	Clock input for serial data transfer from CPU. (No pull-up resistance)
21	XLT	I	Latch input from CPU. (No pull-up resistance)
22	DATA	I	Serial data input from CPU. (No pull-up resistance)
23	XRST	I	Reset system at “L” setting. (No pull-up resistance)
24	C_OUT	O	Signal output for track number counting.
25	SENS1	O	FZC, DFCT1, TZC, BALH, TGH, FOH, or ATSC is output depending on the command from CPU.
26	SENS2	O	DFCT2, MIRR, BALL, TGL or FOL is output depending on the command from CPU.
27	FOK	O	Output terminal for focus OK comparator.
28	CC2	I	Input pin where the DEFECT bottom hold output is capacitance coupled.
29	CC1	O	DEFECT bottom-hold output terminal. Internally connected to interruption comparator input.
30	CB	I	Connection terminal for DEFECT bottom-hold capacitor.
31	CP	I	Connection terminal for MIRR hold-capacitor. Anti-reverse input terminal for MIRR comparator.

Pin No.	Pin Name	I/O	Description
32	RF_I	I	Input terminal by capacity combination of RF summing amplifier.
33	RF_O	O	Output terminal of RF summing amplifier. Checkpoint of Eye pattern.
34	RF_M	I	Anti-reverse input terminal for RF summing amplifier. The gain of RF amplifier is decided by the connection resistance between RF_M and RFO terminals.
35	RFTC	I	This is a pin where the selection time constant is externally connected to control the RF level.
36	LD	O	APC amplifier output terminal.
37	PD	I	APC amplifier input terminal.
38, 39	PD1, PD2	I	RFI-V amplifier inverted input pin. These pins are connected to the A+C and B+C pins of the optical pickup, receiving by currents input.
40	FEBIAS	I/O	Bias adjustment pin of the focus error amplifier.
41, 42	F, E	I	F and EIV amplifier inverted input pins. These pins are connected to the F and E of the optical pickup, receiving by current input.
43	EI	—	Gain adjustment pin of the I-V amplifier E. (When not in use of BAL automatic adjustment)
44	VEE	—	GND connection pin.
45	TEO	O	Output terminal for tacking-error amplifier. Output E-F signal.
46	LPFI	I	BAL adjustment comparator input pin. (Input through LPF from TEO)
47	TEI	I	Input terminal for tracking error.
48	ATSC	I	Window-comparator input terminal for detecting ATSC.
49	TZC	I	Input terminal for tracking-zero cross comparator.
50	TDFCT	I	Capacitor connection pin for the time constant used when there is defect.
51	VC	O	Output terminal for DC voltage reduced to half of VCC+VEE.
52	FZC	I	Input terminal for focus-zero cross comparator.

IC, CXD2540Q

Pin No.	Pin Name	I/O	Description
1	FOK	I	Focus OK input. Used for SENS output and the servo auto sequencer.
2	FSW	O	Spindle motor output filter switching output.
3	MON	O	Spindle motor on/off control output.
4	MDP	O	Spindle motor servo control.
5	MDS	O	
6	LOCK	O	High, when sampled value of GFS at 460Hz is high. Low, when sampled value of GFS at 460Hz is low by 8 times successively.
7	NC		
8	VCOO	O	Analog EFM PLL oscillation circuit output.
9	VCOI	I	Analog EFM PLL oscillation circuit input. fLOCK=8.6436MHz.
10	TEST	I	TEST pin.
11	PDO	O	Analog EFM PLL charge pump output.
12	VSS		GND.
13	PWMI	I	Spindle motor external control input.
14	V16M	O	VCO2 oscillation output for the wide-band EFM PLL.
15	VCTL	I	VCO2 control voltage input for the wide-band EFM PLL.
16	VPCO	O	Wide-band EFM PLL charge pump output.
17	VCKI	I	VCO2 oscillation input for the wide-band EFM PLL.
18	FILO	O	Multiplier PLL (slave=digital PLL) filter output.
19	FILI	I	Multiplier PLL filter input.
20	PCO	O	Multiplier PLL charge pump output.
21	AVSS		Analog GND.
22	CLTV	I	Multiplier VCO1 control voltage input.
23	AVDD		Analog power supply (5V).
24	RF	I	EFM signal input.
25	BIAS	I	Constant current input of the asymmetry circuit.
26	ASYI	I	Asymmetry comparator voltage input.
27	ASYO	O	EFM full-swing output.
28	ASYE	I	Low: asymmetry circuit off; high: asymmetry circuit on.
29	NC		
30	PSSL	I	Audio data output mode switching input. Low: serial output; high: parallel output.
31	WDCK	O	D/A interface for 48-bit slot. Word clock f=2Fs.
32	LRCK	O	D/A interface for 48-bit slot. LR clock f=Fs.
33	VDD		Power supply (5V).
34	DA16	O	DA16 (MSB) output when PSSL=1. 48-bit slot serial data (two's complement, MSB first) when PSSL=0.
35	DA15	O	DA15 output when PSSL=1. 48-bit slot bit clock when PSSL=0.
36	DA14	O	DA14 output when PSSL=1. 64-bit slot serial data (two's complement, LSB first) when PSSL=0.
37	DA13	O	DA13 output when PSSL=1. 64-bit slot bit clock when PSSL=0.
38	DA12	O	DA12 output when PSSL=1. 64-bit slot LR clock when PSSL=0.

Pin No.	Pin Name	I/O	Description
39	DA11	O	DA11 output when PSSL=1. GTOP output when PSSL=0.
40	DA10	O	DA10 output when PSSL=1. XUGF output when PSSL=0.
41	DA09	O	DA09 output when PSSL=1. XPLCK output when PSSL=0.
42	DA08	O	DA08 output when PSSL=1. GFS output when PSSL=0.
43	DA07	O	DA07 output when PSSL=1. RFCK output when PSSL=0.
44	DA06	O	DA06 output when PSSL=1. C2PO output when PSSL=0.
45	DA05	O	DA05 output when PSSL=1. XRAOF output when PSSL=0.
46	DA04	O	DA04 output when PSSL=1. MNT3 output when PSSL=0.
47	DA03	O	DA03 output when PSSL=1. MNT2 output when PSSL=0.
48	DA02	O	DA02 output when PSSL=1. MNT1 output when PSSL=0.
49	DA01	O	DA01 output when PSSL=1. MNT0 output when PSSL=0.
50	APTR	O	Aperture compensation control output. This pin outputs a high signal when the right channel is used.
51	APTL	O	Aperture compensation control output. This pin outputs a high signal when the left channel is used.
52	VSS		GND.
53	XTAI	I	Crystal oscillation circuit input.
54	XTAO	O	Crystal oscillation circuit output.
55	XTSL	I	Crystal selector input.
56	FSTT	O	2/3 frequency divider output for Pins 53 and 54.
57	FSOF	O	1/4 frequency divider output for Pins 53 and 54.
58	C16M	O	16.9344MHz output. (V16M output in CLV-W and CAV-W modes)
59	MD2	I	Digital-out on/off control. High: on; low: off
60	DOUT	O	Digital-out output.
61	EMPH	O	Outputs a high signal when the playback disc has emphasis, and a low signal when there is no emphasis.
62	WFCK	I	WFCK (write frame clock) output.
63	SCOR	O	Outputs a high signal when either subcode sync S0 or S1 is detected.
64	SBSO	O	Sub P to W serial output.
65	EXCK	I	SBSO readout clock input.
66	SQSO	O	Sub Q 80-bit and PCM peak, level metter and internal status outputs.
67	SQCK	I	SQSO readout clock input.
68	MUTE	I	High: mute; low: release
69	SENS	—	SENS output to CPU.
70	XRST	I	System reset. Reset when low.
71	DATA	O	Serial data input from CPU.
72	XLAT	O	Latch input from CPU. Serial data is latched at the falling edge.
73	VDD		Power supply (5V).
74	CLOK	O	Serial data transfer clock input from CPU.
75	SEIN	I	SENS input from SSP.
76	CNIN	I	Track jump count signal input.

Pin No.	Pin Name	I/O	Description
77	DATO	O	Serial data output to SSP.
78	XLTO	O	Serial data latch output to SSP. Latched at the falling edge.
79	CLKO	O	Serial data transfer clock output to SSP.
80	MIRR	I	Mirror signal input. Used when the number of tracks is 128 or more for the 2N-track jump and M track move of the auto sequencer.

Notes)

- The 64-bit slot is an LSB first, two's complement output, and the 48-bit slot is an MSB first, two's complement output.
- GTOP is used to monitor the frame sync protection status. (High: sync protection window open.)
- XUGF is the negative pulse for the frame sync obtained from the EFM signal. It is the signal before sync protection.
- XPLCK is the inverse of the EFM PLL clock. The PLL is designed so that the falling edge and the EFM signal transition point coincide.
- GFS goes high when the frame sync and the insertion protection timing match.
- RFCK is derived from the crystal accuracy, and has a cycle of 136μ.
- C2PO represents the data error status.
- XRAOF is generated when the 32K RAM exceeds the ±28F jitter margin.

IC, CL680

Pin No.	Pin Name	I/O	Description
1	NC	—	No connection.
2	VSS	—	GND.
3	CD BCK	I	Bit clock input from CD DSP.
4	CD DATA	I	Data input from CD DSP.
5	CD LRCK	I	LRCK input from CD DSP.
6	CD C2PO	I	C2 pointer input from CD DSP.
7-9	NC	—	No connection.
10-15	MD0-MD5	I/O	DRAM/ROM interface. (DATA)
16	VSS	—	Ground.
17	MD6	I/O	DRAM/ROM interface. (DATA)
18	VDD3	—	Power supply 3.3V.
19	MD7	I/O	DRAM/ROM interface. (DATA)
20	VSS	—	Ground.
21	MD8	I/O	DRAM/ROM interface. (DATA)
22	VDD3	—	Power supply 3.3V.
23-29	MD9-MD15	I/O	DRAM/ROM interface. (DATA)
30-36	NC	—	No connection.
37	$\overline{\text{MCE}}$	—	ROM chip enable.
38	$\overline{\text{MWE}}$	O	DRAM write enable.
39	VSS	—	Ground.
40	$\overline{\text{CAS}}$	O	DRAM/ROM interface.
41	VDD3	—	Power supply 3.3V.
42	$\overline{\text{RASO}}$	O	DRAM/ROM interface.
43	$\overline{\text{RASI}}$	O	
44-46	MA10-MA8	O	DRAM/ROM interface. (Address)
47	VSS	—	Ground.
48	MA7	O	DRAM/ROM interface. (Address)
49	VDD3	—	Power supply 3.3V.
50-52	MA6-MA4	O	DRAM/ROM interface. (Address)
53	VSS	—	Ground.
54	MA3	O	DRAM/ROM interface. (Address)
55	VDD3	—	Power supply 3.3V.
56-58	MA2-MA0	O	DRAM/ROM interface. (Address)
59	PGIO7	I/O	Programmable I/O.
60	$\overline{\text{RESET}}$	I	Reset input.
61	VDD MAX IN	—	Power supply - VDDMAX. (5.0V)
62-64	NC	—	No connection.
65	AGND DAC	—	Analog ground.
66	A DAC	—	Analog power supply (DAC) : 3.3V.
67	COMP OUT	O	Composite out.
68	AGND DAC	—	Analog ground.

Pin No.	Pin Name	I/O	Description
69	Y OUT	O	Video signal “Y” OUT.
70	AVDD DAC	—	Analog power supply (DAC) 3.3V.
71	AGND DAC	—	Analog ground.
72	R REF	I	Reference resistor input.
73	V REF	I	Voltage reference input.
74	AVDD DAC	—	Analog power supply (DAC) : 3.3V.
75	C OUT	O	Video signal “C” out.
76	AGND DAC	—	Analog ground.
77-79	CLK SEL0-2	I	Clock selection input.
80	VSS	—	Ground.
81	CLK SEL3	I	Clock selection input.
82	VDD3	—	Power supply 3.3V.
83, 84	CLK SEL4, 5	I	Clock selection input.
85	AGND PLL	—	Analog ground.
86	DA XCK	I	DA XCK (16.933MHz) input.
87	AVDD PLL	—	Analog power supply 3.3V.
88	DA EMP	O	DAC-emphasis output.
89, 90	PGIO5, O6	I/O	Programmable I/O.
91	PGIO0	I/O	
92	PGIO8	I/O	
93	$\overline{\text{VSYNC}}/\overline{\text{CSYNC}}$	O	$\overline{\text{VSYNC}}/\overline{\text{CSYNC}}$ output.
94	AVDD PLL	—	Analog power supply (PLL) 3.3V.
95	VID_DAC_CK	O	Video DAC clock.
96	PROC_CK	O	Processor clock.
97	AUD_XCK	O	Audio XCK.
98	AGND PLL	—	Analog ground.
99	VSS	—	Ground.
100	NC	—	No connection.
101	$\overline{\text{HSYNC}}$	O	$\overline{\text{HSYNC}}$ output.
102	VDD3	—	Power supply 3.3V.
103	VCK OUT	O	VCK out.
104	VSS	—	Ground.
105	GCK	I	Global clock signal input. (42.3MHz)
106	VCK	I	Video clock signal input. (27.0MHz)
107	GCK OUT	O	Global clock signal output. (27.0MHz)
108	DA LRCK	O	DAC-LRCK output.
109	VDD MAX OUT	—	Power supply (VDD MAX) : 5.0V.
110	DA DATA	O	DAC-PCM data output.
111	DA BCK	O	DAC-BIT clock output.
112	HD OUT	O	Micon interface. (Data out)
113	HRDY	O	Micon interface. (Host ready)

Pin No.	Pin Name	I/O	Description
114	$\overline{\text{HINT}}$	O	Micon interface. (Host interrupt)
115	CDG SCK	I	CD-G serial clock input.
116	VSS	—	Ground.
117	HCK	I	Micon interface. (Host clock)
118	VDD3	—	Power supply 3.3V.
119	HD IN	I	Micon interface. (Host data in)
120	VDD3	—	Power supply 3.3V.
121	HSEL	I	Micon interface. (Host select in)
122	CDG DATA	I	CD-G data input.
123	CDG VFSY	I	CD-G VFSY input.
124	CDG SOSI	I	CD-G SOSI input.
125	DSP-XCK	O	DSP-XCK output.
126-128	NC	—	No connection.

IC, LC74781M

Pin No.	Pin Name	I/O	Description
1	VSS1	—	GND connection terminal. (Digital ground terminal).
2	Xtal IN	I	External X'tal and capacitor for internal sync generator, or the external clock are connected to this terminal. (2fsc or 4fsc).
3	Xtal OUT	O	
4	CTRL1	I	Either the external clock input mode or the X'tal generator mode is selected by this selector terminal. L: X'tal generator mode, H: External clock input.
5	BLANK	O	Blank signal (character and the green ORed signal) is output from this terminal. (MODE 0: composite sync signal is output at H.) When reset ($\overline{RST}$ terminal = L), the X'tal clock signal is output. (It is not output when reset by the reset command).
6	OSC IN	I	External coil and capacitor for the character output dot clock generator are connected to this terminal.
7	OSC OUT	O	
8	CHARA	O	The character signal is output from this terminal. (MOD 0: when H, the external sync signal identification signal is output from this terminal. This output signal tells whether the external sync signal is present or not. When external sync signal is present, H is output.) When reset ($\overline{RST}$ terminal = L), the dot clock signal (LC oscillator) is output. (It is not output when reset by the reset command).
9	$\overline{CS}$	I	Enable signal for the serial data input is input to this terminal. The serial data input is enabled at L. Pull-up resistor is built-in. (Hysteresis input).
10	SCLK	I	Clock of the serial data input is input to this terminal. Pull-up resistor is built-in. (Hysteresis input).
11	SIN	I	Serial data input terminal. Pull-up resistor is built-in. (Hysteresis input).
12	VDD2	—	Power supply for the composite video signal level adjustment. (Analog power supply).
13	CV OUT	O	Composite video signal output terminal.
14	NC	—	Connected to GND or not connected.
15	CV IN	I	Composite video signal input terminal.
16	VDD1	—	Power supply (+5V digital power supply).
17	SYN IN	I	Video signal for the internal sync separator circuit is input to this terminal. (When the internal sync separator circuit is not used, the horizontal sync signal or composite sync signal is input to this terminal).
18	SEP C	—	Internal sync separator circuit bias voltage monitoring terminal.
19	SEP OUT	O	The composite sync output signal of the internal sync separator circuit is output from this terminal. (H: MOD 1. H: during internal sync mode. L: during external sync mode.) (When internal sync separator circuit is not used, the SYN IN input signal is output from this terminal).
20	SEP IN	I	The output signal of the SEP OUT terminal is integrated so that the vertical sync signal is input to this terminal. An integrator circuit must be connected between the SEP OUT terminal and this terminal. When this terminal is not used, it must be connected to VDD1.
21	CTRL2	I	When selecting any of the NTSC or PAL or PAL-M or PAL-N system, the pin setting has priority. When L, the NTSC system is selected after resetting. Selection of either NTSC or PAL or PAL-M or PAL-N system by the command becomes effective. H: PAL-M system.

Pin No.	Pin Name	I/O	Description
22	CTRL3	I	Controls whether or not to input the $\overline{\text{VSYNC}}$ signal to the SEPIN input. L: to input the $\overline{\text{VSYNC}}$ signal. H: not to input the $\overline{\text{VSYNC}}$ signal.
23	$\overline{\text{RST}}$	I	System reset input terminal. Pull-up resistor is built-in. (Hysteresis input).
24	VDD1	—	Power supply. (+5V digital power supply).

IC, µPD78016FGC

Pin No.	Pin Name	I/O	Description
1	RBPLS	O	RADIAL BALANCE PLUS.
2	AMUTE	O	AUDIO ANALOG MUTE (H=MUTE ON).
3	GFS	I	GFS.
4	XVCDMD	I	AUDIO/VIDEO CD MODE (L=VCD=SPINDLE GAIN UP).
5	MD2	O	DOUT MUTE CONT.
6	EMPH	I	EMPHASIS.
7	SQSO	I	SQDATA FROM CD.
8	SQCK	O	SQCLK TO CD.
9	VSS	—	GND.
10	SWNT	I	SW TV OUT MODE (L=NTSC).
11	SWAUTO	I	SW TV OUT MODE (L=NTSC/PAL AUTO).
12	SWPAL	I	SW TV OUT MODE (L=PAL).
13	EMERG	I	POWER EMERGENCY STOP (L*3sec=STOP).
14	NC	—	Nou used.
15	LPCSEL	I	“LPC ON/OFF (H=ON, NORMAL)”.
16	NC	—	Nou used.
17	LOCK	O	GFS (FRAME SYNC) LOCK (NO USE=H).
18	DMUTE	O	DIGITAL DATA OUT MUTE.
19	SENS	I	DSP SENS1 FROM CD.
20	XCDRST	O	CD RESET.
21	DATA	O	DATA TO CD.
22	XLAT	O	XLT TO CD.
23	CLOK	O	CLK TO CD.
24	VSS	—	GND.
25	FOK	I	FOCUS OK.
26	SENS2	I	SSP SENS2 FROM CD.
27	XBUSY	I/O	READY/BUSY I/O TO HOST OD.
28	NC	—	Nou used.
29	NC	—	
30	NC	—	
31	TST0	I/O	CHECK LAND.
32	TST1	I/O	
33	TST2	I/O	
34	TST3	I/O	
35	RESET	I	RESET.
36	HRDY	I	HRDY FROM CL680.
37	XHINT	I	HINT FROM CL680.
38	NC	—	Nou used.
39	SCOR	I	SCOR FROM CD.
40	VDD	—	5.0VDD.
41	XO	O	8.0MHz CERALOCK.

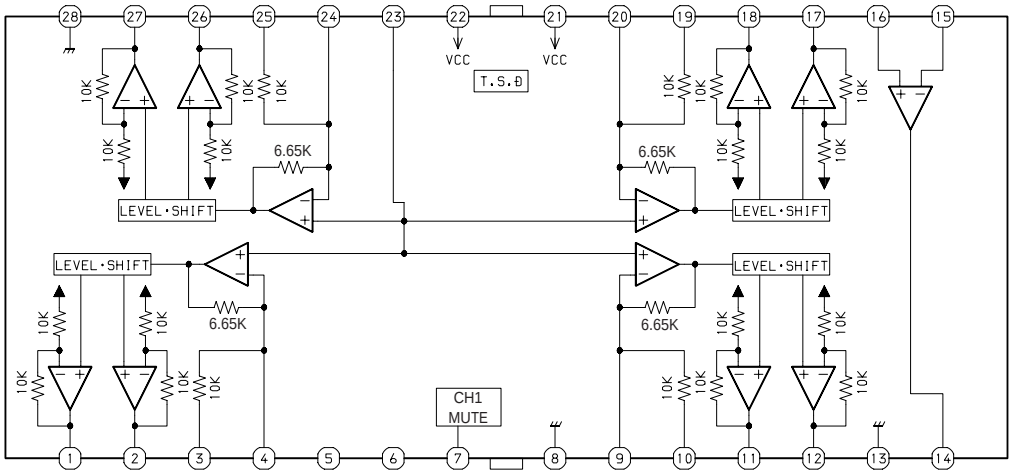
Pin No.	Pin Name	I/O	Description
42	XI	I	8.0MHz CERALOCK.
43	VSS	—	GND.
44	XT2	—	Nou used.
45	XT1	I	5.0VDD.
46	AVSS	—	GND.
47	XMPGRST	O	MPEG BLOCK IC RESET.
48	HSEL	O	ADDRESS/DATA SEL TO CL680.
49	INLSW	I	INSIDE LIMIT SW.
50	NC	—	Nou used.
51	OSDXCS	O	OSD CHIP SELECT.
52	ABSEL	I	CXA1992A/B SELECT (L=CXA1992A).
53	CLVSEL	I	CLV MODE SELECT (H=CLV-N).
54	AADSEL	I	AUTO ADJUST SELECT (H=AUTO ON).
55	AVDD	—	5.0VDD.
56	AVREF	—	
57	HDOUT	I	HD-OUT FROM CL680.
58	HDIN	O	HD-IN TO CL680.
59	HCK	O	HCK TO CL680.
60	OSDDATA	O	OSD DATA.
61	OSDCLK	O	OSD CLOCK.
62	COMMAND	I	COMMAND FROM HOST.
63	STATUS	O	STATUS TO HOST.
64	SCK	I	SCK FROM HOST.

IC, SM5878M

Pin No.	Pin Name	I/O	Description
1	MUTE	I	MODE = H: Soft mute ON/OFF terminal. (Mute at H). MODE = L: Attenuator level DOWN/UP terminal. (DOWN at H).
2	DEEM	I	De-emphasis ON/OFF terminal. (De-emphasis ON at H).
3	CKO	O	Oscillator clock output. (16.9344 MHz).
4	DVSS	—	Digital VSS terminal.
5	BCKI	I	Bit clock input terminal.
6	DI	I	Serial data input terminal.
7	DVDD	—	Digital VDD terminal.
8	LRCI	I	Sample rate clock (fs) input terminal. (H = L ch/L = R ch).
9	TSTN	I	Test input. (“H” or open during normal operation)
10	TO1	O	Test output 1. (Normally low level output).
11	AVDDL	—	Analog VDD terminal. (For L ch).
12	LO	O	Left channel analog output terminal.
13	AVSS	—	Analog VSS terminal.
14	RO	O	Right channel analog output terminal.
15	AVDDR	—	Analog VDD terminal. (For R ch).
16	MUTEO	O	Infinity zero detection output.
17	XVDD	—	X’tal system VDD terminal.
18	XTI	I	X’tal oscillator terminal. (Or external clock input terminal of 16.9344 MHz).
19	XTO	O	X’tal oscillator terminal.
20	XVSS	—	X’tal system VSS terminal.
21	DS	I	Double-speed/normal playback selection. (Double-speed at H).
22	RSTN	I	Reset terminal. (Reset at L).
23	MODE	I	Soft mute/Attenuator mode selection. (Soft mute at H).
24	ATCK	I	Attenuator level setup clock (Ignored when MODE = H).

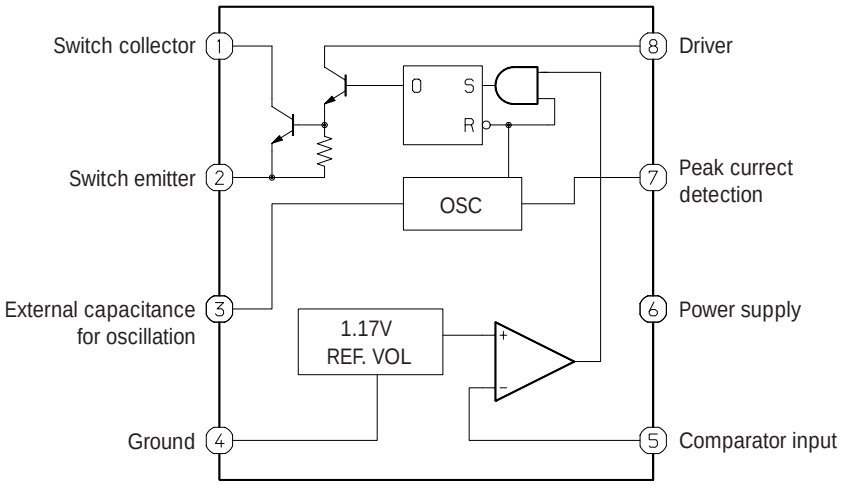
IC BLOCK DIAGRAM

IC, BA5915FP

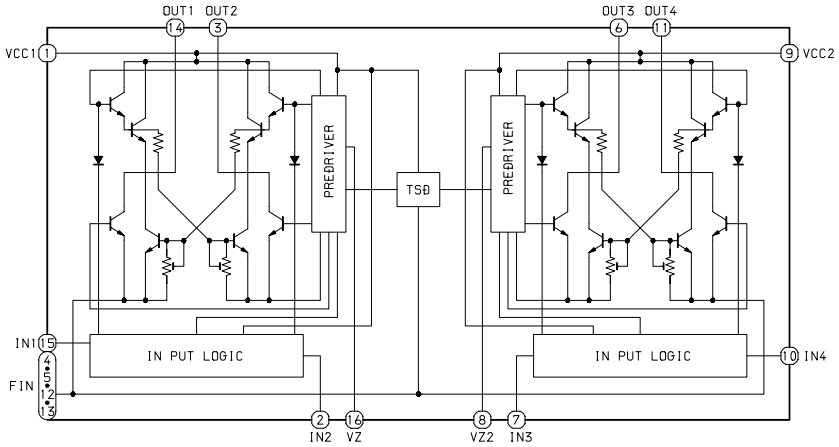


T.S.D: Thermal shut-down
Resistors are in units of Ω.

IC, M5291FP



IC, LB1644



TRUH TABLE

IN1	IN2	OUT1	OUT2	IN3	IN4	OUT3	OUT4
0	0	L	L	0	0	L	L
1	0	H	L	1	0	H	L
0	1	L	H	0	1	L	H
1	1	L	L	1	1	L	L

INPUT			OUTPUT				MODE	
IN1	IN2.3	IN4	OUT1	OUT2	OUT3	OUT4	M1	M2
0	0	0	L	L	L	L	BRAKE	BRAKE
1	0	0	H	L	L	L	FF/REW	BRAKE
0	1	1	L	H	L	L	REW/FF	BRAKE
1	1	0	L	L	H	L	BRAKE	FF/REW
0	0	1	L	L	L	H	BRAKE	REW/FF
1	1	1	L	L	L	L	BRAKE	BRAKE

TEST MODE

1. How to Activate CD Test Mode
   Insert the AC plug while pressing the function CD button.
   All FL display tubes will light up, and the test mode will be activated.

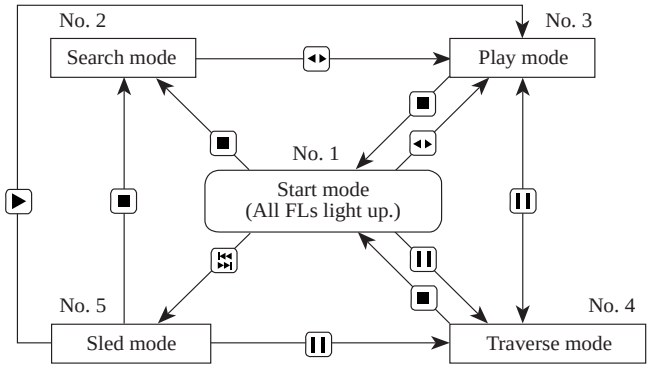
2. How to Cancel CD Test Mode
   Either one of the following operations will cancel the CD test mode.
   - Press the function button. (except CD function button)
   - Press the power switch button.
   - Disconnect the AC plug

3. CD Test Mode Functions
   When test mode is activated, the following mode functions from No.1 to No.5 can be used by pressing the operation keys.

Mode/No.	Operation	FL display	Operation	Contents
Start mode No.1	Activation	TEST□□ □□ □□ Flashes repeatdly	• Test mode is activated. • CD block power is ON.	• Test mode
Search mode No.2	■ key		• Continual focus search (The pickup lens repeats the full-swing up-down motion.) * Avoid continual searches that last for more than 10 minutes. * NOTE 1	FOCUS SERVO • Check focus search waveform • Check focus error waveform (FOK/FZC are not monitored in the search mode)
Play mode No.3	◀▶key		• Normal playback • Focus search is continued if TOC cannot be read. * NOTE 1	FOCUS SERVO/TRACKING SERVO CLV SERVO/SLED SERVO Check FOK/FZC
Traverse mode No.4	⏸ key		• During normal disc playback Press once; tracking servo OFF Press twice; tracking servo ON * NOTE 2	TRACKING SERVO ON/OFF Tracking balance (traverse) check
Sled mode No.5	⏮key ⏭	All lamps light	• Pickup moves to the outermost track • Pickup moves to the innermost track * NOTE 3 (During playback, machine operates normally.)	SLED SERVO Check SLED mechanism operation

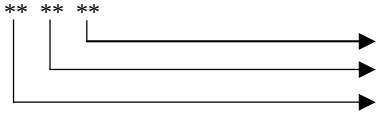
* NOTE 1: There are cases when the tracking servo cannot be locked owing to the protection circuit being operated when heat builds up in the driver IC if the focus search is operated continually for more than 10 minutes. In these cases the power supply should be switched off for 10 minutes until heat has been reduced and then re-started.
* NOTE 2: Do not press the ⏮ or ⏭ keys when the machine is in the ⏸ status is active. If they are pressed, playback will not be possible after the ⏸ status has been canceled. If the ⏮ or ⏭ keys are pressed in the ⏸ status, press the ■ key and return to the start mode (No.1).
* NOTE 3: When pressing the ⏮ or ⏭ keys, take care to avoid damage to the gears. Because the sled motor is activated when the ⏮ or ⏭ keys are pressed, even when the pick-up is at the outermost or innermost track.

4. Operation Outline
   The operation of each mode is carried out in the direction of the arrows from the start mode as indicated in the following illustration.



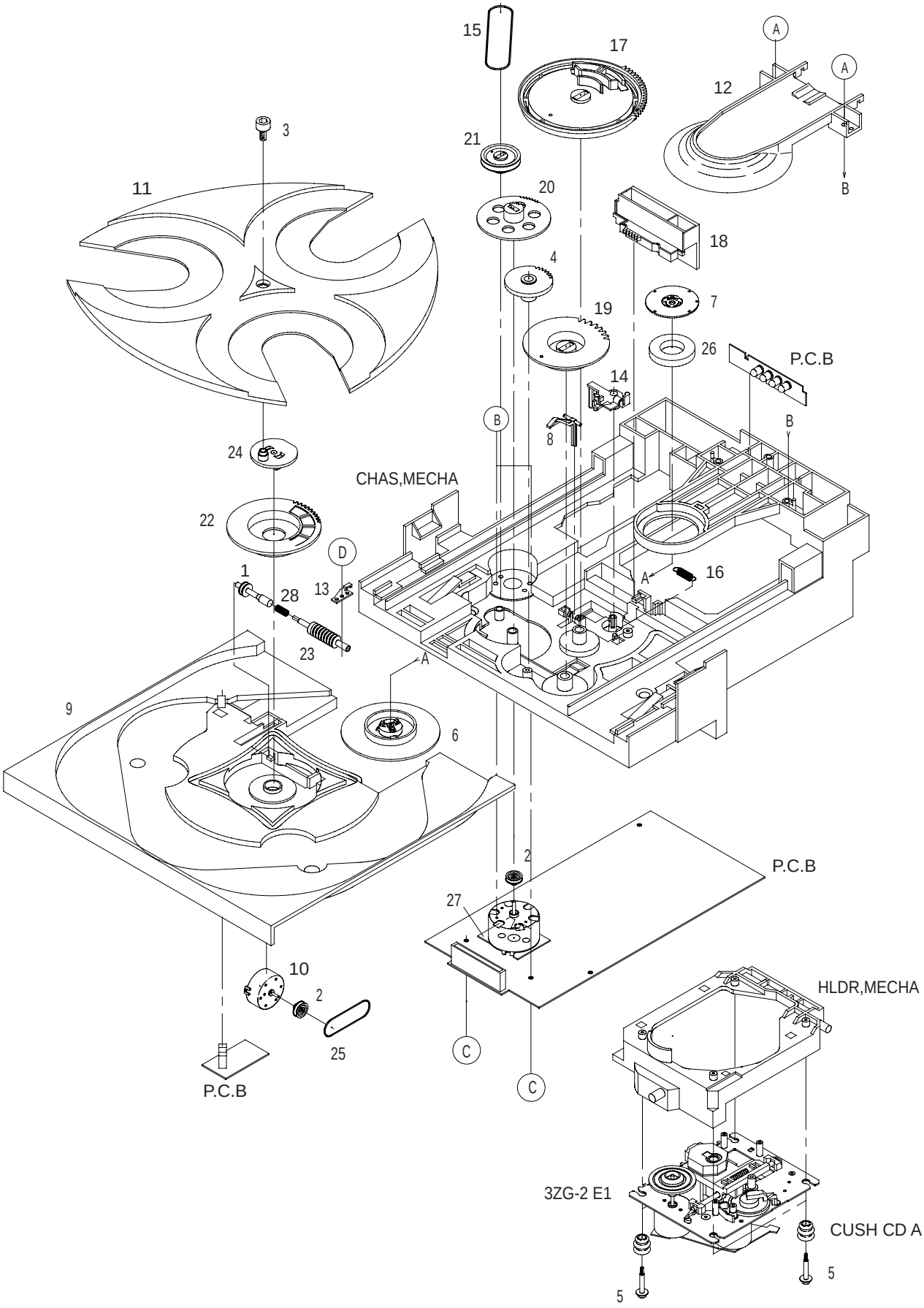
   If the DISC DIRECT PLAY button is pressed, the machine performs the same operation as the PLAY button is pressed as shown. If the tray is opened by pressing OPEN/CLOSE button during Play mode or Traverse mode, the machine returns to the Start mode.

5. How to check the Automatic Adjustment Values
   The automatic adjustment values can be checked by pressing the square (■) button.
   FL display (displayed in hexadecimal values)



Note) The reference value is “20 08 08”.

MECHANICAL EXPLODED VIEW 1/1

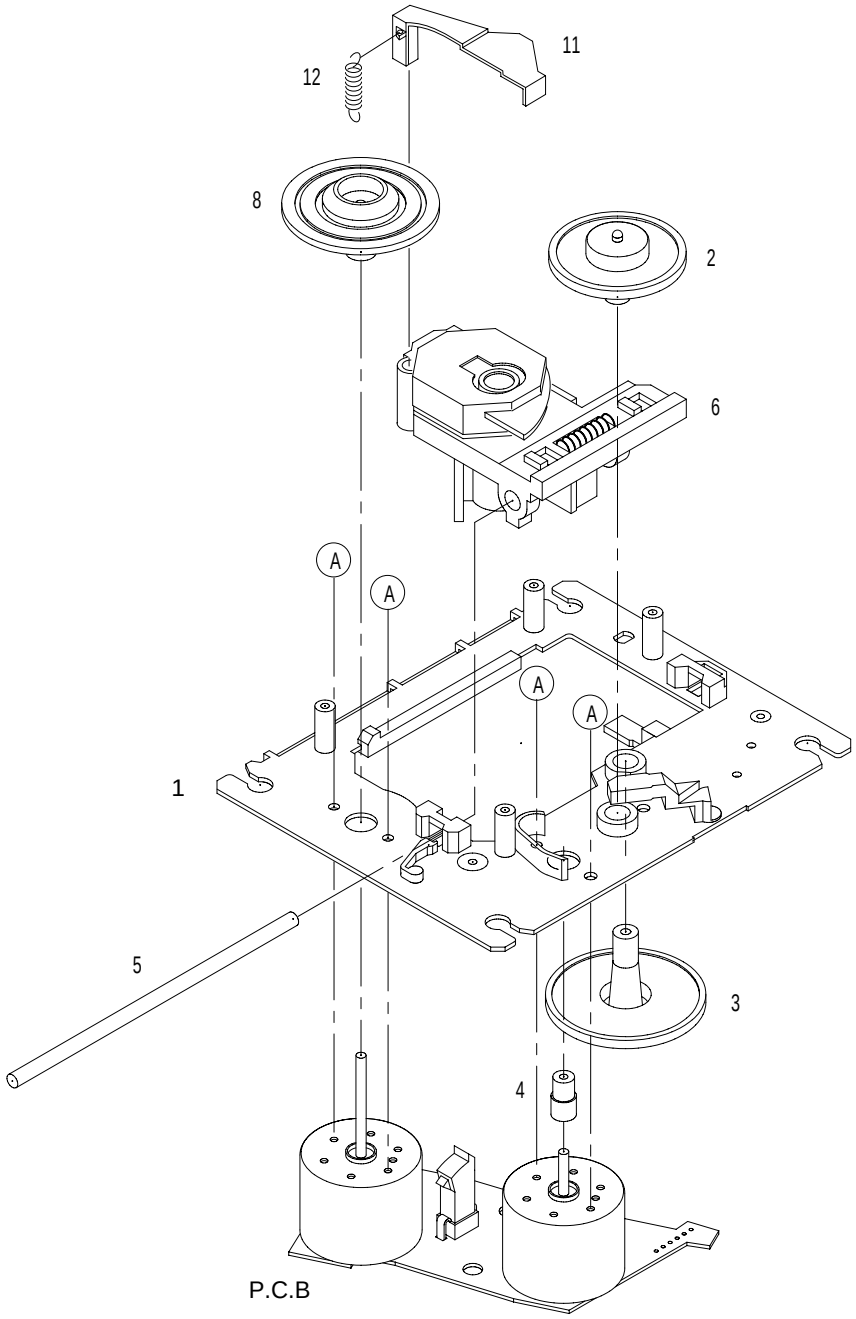


MECHANICAL PARTS LIST 1/1

DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	84-ZG1-239-210		PULLY,WORM N
2	84-ZG1-267-010		PULLEY,LOAD MO 8
3	81-ZG1-239-010		S-SCREW,TT
4	81-ZG1-291-110		GEAR,TRAY RELAY NO3
5	81-ZG1-271-010		S-SCREW MECH REAR
6	81-ZG1-277-310		HLDR,MAGNET N
7	81-ZG1-255-110		PLATE,MAGNET MK2
8	83-ZG3-213-010		LVR,SW
9	84-ZG1-003-310		TRAY,NO2-B
10	87-045-364-010		MOTOR(BCH3B14)
11	84-ZG1-005-210		TURNTABLE,NO1(*)
12	84-ZG1-011-010		REFLECTOR,CD
13	84-ZG1-259-010		SPR-P,WORM
14	84-ZG1-208-210		LEVER,CAM
15	84-ZG1-209-010		BELT,SQ1.8-117.7
16	84-ZG1-211-010		SPR-E CAM S
17	84-ZG1-215-410		GEAR,MAIN CAM BLU
18	84-ZG1-216-310		SLIDE,MECHA CAM YEL
19	84-ZG1-205-110		GEAR,TRAY
20	84-ZG1-206-110		GEAR,RELAY
21	84-ZG1-207-010		PULLEY,RELAY
22	84-ZG1-221-010		GEAR,MAIN TT
23	84-ZG1-238-010		GEAR,WORM N
24	84-ZG1-224-010		LEVER,TT
25	84-ZG1-225-010		BELT,SQ1.0-63.3
26	83-ZG3-602-010		RING,MAG
27	87-045-305-010		MOTOR, RF-500TB DC-5V (2MA)
28	84-ZG1-248-010		SPR-C,WORM
A	87-067-703-010		TAPPING SCREW, BVT2+3-10
B	87-251-070-410		U+2.6-3
C	87-342-036-210		UT2+2-8
D	87-067-981-010		BVT2+3-6 BLK

CD MECHANISM EXPLODED VIEW 1/1 (3ZG-2 E1)



CD MECHANISM PARTS LIST 1/1 (3ZG-2 E1)

DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	83-ZG2-243-110		CHAS ASSY,SHT
2	83-ZG2-235-010		GEAR,A3
3	83-ZG2-205-210		GEAR,B
4	83-ZG2-236-010		GEAR MOTOR 3
5	83-ZG2-240-010		SHAFT,SLIDE 3
6	87-A90-836-010		PICKUP,KSS-213F
8	83-ZG2-233-010		TURN TABLE,A5
11	83-ZG2-245-110		LEVER,SHUTTER
12	83-ZG2-250-010		SPR-E,SHT 2
A	87-261-032-210		SCREW V+2-3

CX-NAK572
CX-NK270
CX-NK290
CX-NK370
CX-NK570
CX-NK765
CX-NK770
CX-NK970
DX-SNKH100

REFERENCE NAME LIST

ELECTRICAL SECTION

DESCRIPTION	REFERENCE NAME
ANT	ANTENNAS
C-	CHIP
C-CAP	CAP, CHIP
C-CAP TN	CAP, CHIP TANTALUM
C-COIL	COIL, CHIP
C-DI	DIODE, CHIP
C-DIODE	DIODE, CHIP
C-FET	FET, CHIP
C-FOTR	FILTER, CHIP
C-JACK	JACK, CHIP
C-LED	LED, CHIP
C-RES	RES, CHIP
C-SFR	SFR, CHIP
C-SLIDE SW	SLIDE SWITCH, CHIP
C-SW	SWITCH, CHIP
C-TR	TRANSISTOR, CHIP
C-VR	VOLUME, CHIP
C-ZENER	ZENER, CHIP
CAP, CER	CAP, CERA-SOL
CAP, E	CAP, ELECT
CAP, M/F	CAP, FILM
CAP, TC	CAP, CERA-SOL
CAP, TC-U	CAP, CERA-SOL SS
CAP, TN	CAP, TANTALUM
CERA FIL	FILTER, CERAMIC
CF	FILTER, CERAMIC
DL	DELAY LINE
E/CAP	CAP, ELECT
FILT	FILTER
FLTR	FILTER
FUSE RES	RES, FUSE
MOT	MOTOR
P-DIODE	PHOTO DIODE
P-SNSR	PHOTO SENSER
P-TR	PHOTO TRANSISTOR
POLY VARI	VARIABLE CAPACITOR
PPCAP	CAP, PP
PT	POWER TRANSFORMER
PTR, RES	PTR, MELF
RC	REMOTE CONTROLLER
RES NF	RES, NON-FLAMMABLE
RESO	RESONATOR
SHLD	SHIELD
SOL	SOLENOID
SPKR	SPEAKER
SW, LVR	SWITCH, LEVER
SW, RTRY	SWITCH, ROTARY
SW, SL	SWITCH, SLIDE
TC CAP	CAP, CERA-SOL
THMS	THERMISTOR
TR	TRANSISTOR
TRIMMER	CAP, TRIMMER
TUN-CAP	VARIABLE CAPACITOR
VIB, CER	RESONATOR, CERAMIC
VIB, XTAL	RESONATOR, CRYSTAL
VR	VOLUME
ZENER	DIODE, ZENER

MECHANICAL SECTION

DESCRIPTION	REFERENCE NAME
ADHESHIVE	SHEET ADHESHIVE
AZ	AZIMUTH
BAR-ANT	BAR-ANTENNA
BAT	BATTERY
BATT	BATTERY
BRG	BEARING
BTN	BUTTON
CAB	CABINET
CASS	CASSETTE
CHAS	CHASSIS
CLR	COLLAR
CONT	CONTROL
CRSR	CURSOR
CU	CUSHION
CUSH	CUSHION
DIR	DIRECTION
DUBB	DUBBING
FL	FRONT LOADING
FLY-WHL	FLYWHEEL
FR	FRONT
FUN	FUNCTION
G-CU	G-CUSHION
HDL	HANDOL
HIMERON	CLOTH
HINGE, BAT	HINGE, BATTERY
HLDR	HOLDER
HT-SINK	HEAT SINK
IB	INSTRUCTION BOOKLET
IDLE	IDLER
IND, L-R	INDICATOR, L-R
KEY, CONT	KEY, CONTROL
KEY, PRGM	KEY, PROGRAM
KNOB, SL	KNOB, SLIDE
LBL	LABEL
LID, BATT	LID, BATTERY
LID, CASS	LID, CASSETTE
LVR	LEVER
P-SP	P-SPRING
PANEL, CONT	PANEL, CONTROL
PANEL, FR	PANEL, FRONT
PRGM	PROGRAM
PULLY, LOAD MO	PULLY, LOAD MOTOR
RBN	RIBBON
S-	SPECIAL
SEG	SEGMENT
SH	SHEET
SHLD-SH	SHIELD-SHEET
SL	SLIDE
SP	SPRING
SP-SCREW	SPECIAL-SCREW
SPACER, BAT	SPACER, BATTERY
SPR	SPRING
SPR-P	P-SPRING
SPR-PC-PUSH	P-SPRING, C-PUSH
T-SP	T-SPRING
TERM	TERMINAL
TRIG	TRIGGER
TUN	TUNING
VOL	VOLUME
W	WASHER
WHL	WHEEL
WORM-WHL	WORM-WHEEL

サービス技術ニュース	
番号	連絡内容
G一　一	
G一　一	
G一　一	

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